**Empirical Research**

**A STUDY GUIDE**

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# **INTRODUCTION**

Why another book on research methods? There are a few books that are over cited by students in East Africa. These books tend to be absolutised by teachers and examiners. What is important in research is the scientific approach. Not everything is written on rock. Moreover, research goes beyond the mere fulfilment of an academic requirement in terms of producing a thesis or a dissertation. This book focuses on a scientific approach mat insists on an internal consistency. The book also proposes that research should go beyond a thesis.

When I started teaching research methods, I realised that students in East Africa have a phobia for research, as they have for maths. I wanted to challenge that fear. I came up with a set of notes that demystifies research. As a result, several of my students produced excellent research projects, appreciated by international scholars. This book provides those set of notes. It includes examples drawn from East African contexts. It has several tables and boxes for easy illustration.

Of course, some of my students could not overcome that fear that perhaps came from their primary education through secondary levels - a lack of focus on the process of science rather than the content of science. How do we make science and maths enjoyable for our kids? This still remains an open question in East Africa. This book attempts not to absolutise the contents of science but draw the attention of the reader to the methodology of science. We can produce science too.

I wish research method will cease to be an overwhelming dragon for the students in universities. I wish they enjoy the process of discovering new knowledge, and not to delegate that pleasure to some money-minded agents who produce ready-made theses. I wish examiners in so called defenses of theses will see a larger picture of the research proposals and reports, focusing on the core of the scientific methodology, rather than to absolute the peripheral style.

How do we know something is scientific? This is my criterion: what gets published in international peer-reviewed journals particularly those that are published by learned associations and renowned universities, even If they are outsourced to academic, publishing companies such as Taylor *&* Francis (Routledge], Sage, Springer. This book captures criteria that emerge from highly ranked journals.

Being the first edition, I understand that there is still room for improvement in the contents of the book. Again, this shows that methodologies are fluid. I hope the work will see different editions. Gratitude is due to my own lecturers of research method at the University of London. King's College, University of Kent and University of Surrey, where I undertook several courses in quantitative and qualitative research methods. Special mention needs to be made renowned professors who mentored me: Joanna Collicutt, David Ball, Jonathan Loose, James Au Yeung, Adrian Coyle, Gordon Lynch, and others. I am grateful to Giuseppe Caramazza. who literally pushed me to transcribe my slides- into texts that form the core of this book. Thanks to Jeketule Soko who has contributed to one of the chapters in the book. Thanks also to some students whose material I have included as samples: Martina Prosen and Jenny Prince Matthew, I am grateful to several lecturers and students at Tangaza University College who have kept a flame my passion for research and scientific enquiry.

# **1**

# **SCIENTIFIC ENQUIRY**

## **1.1 What Is Research?**

Research is a systematic *(scientific)* enquiry into understanding and/or explaining a phenomenon, A good research is worthy of being made public; it contributes to human knowledge that will enhance life. A good research is replicable and generalizable. Here is a typical definition, that summarises the above points:

Research is the systematic attempt to: (a) collect information about an identified problem or question, (b) Analyze that information, and (c) apply the evidence Thus derived id confirm or refute some prior prediction or statement about that problem (Hittleman & Simon, 1997, *p.2).*

## **1.2What Is Science?**

A research is a scientific enquiry. What is the meaning of being scientific? Here are some characteristics of science:

1. Science relies on **empirical evidence.** Its bases its conclusions on data that is perceivable through the senses. So, if you can see something and you claim this is the fact, then I can see it too and have the same experience of the fact. In other words, scientific claim is verifiable
2. Science is **reliable**. If you use a particular method and obtain a particular result from among a particular population, using the same method among the same population, I should be able to get the same result. This is referred to as reliability of a study/research
3. Science is **cumulative**. That is, it builds on itself New knowledge adds to the old. Knowledge grows. That is why, before we undertake a research, we carry out a literature review. The purpose of literature review, as we will see later, is to know what we already know, so that we do not need to reinvent the wheel.
4. Science aims at establishing **cause-effect relationship**. Cause-effect refer? association between two variables (two factors) in such a way that n say that Factor A is the cause of Factor B; that is, Factor A always precedesFactor B, and whenever Factor B appears Factor A should have been there. Cause and effect relationship is so important to understand the world. This can be established only through experimental or quasi experimental designs. (Remember: cause-effect relationship is different from correlation!)

It is important to note that research is scientific. This means what you do in research has to exhibit the above characteristics.

## **1.3. General Procedure in Science**

In order to understand further scientific method, we need to see how science works. According to the 16th Century philosopher of sci­ence, Francis Bacon (Anderson, 1960), the general procedure of science could be summarised in four steps. It is important to internalize these four steps in order also to understand the structure of a research report.

1. *Experience:* Invariably always a big scientific theory/law begins with a sim­ple experience, which probably others failed to notice and to ask the ques­tion, "why does it happen this way?" Several examples can be furnished:

* Archimedes takes bath in a tub; he sees water spilling over as he gets into the tub. He shouts and runs out naked, "Eureka!" He realizes that the weight of the displaced water will be equal to his own weight. The Law of Displacement.
* Newton being hit on the head by an apple. He asks why does the apple fall. This leads to the formulation of the Theory of Gravitation.
* Galileo sees the church lamp swinging. This led to discovery of the Principle of Pendulum.
* James Watt at the kitchen sees the lid of the kettle being lifted by steam. This led to the invention of steam engine.
* Priestley's experiments in 1774 with a gas which helps a candle to burn brighter. He discovers oxygen.

So, your research should begin with an experience. When you observe something, you raise a question. This becomes your research question.

1. *Framing a Hypothesis:* Having noticed a pattern at the behavior of things (“ex things fall") the scientist formulates a hypothesis. A Hypothesis is an idea. It is an informed guess. It is a theory in the making. It is a tentative answer to the problem.

Just because we say hypothesis is a guess, does not mean that there is no logic to it. In our researches, usually literature review helps us frame a hypothesis. Note that it is meaningful to have hypotheses in quantitative re-that use statistical data to test the hypothesis.

1. *Observation and Collecting Data:* Once the scientist has a hypothesis stated goes on to try to test it through experimentation, observation, noting results, and making calculations. If the researcher realises that s/he is not getting anywhere with the experiments, probably then s/he has to restate hypo thesis.

In an academic research, we collect data that will answer the research ques-and/or test the hypothesis. Even if the hypothesis is not supported, we lit the work, because even this adds data to human knowledge. It can at leastsuggest that the theory does not work in this context.

1. *Slating the Theory:* Once the emerging data support the hypothesis, it be­comes a theory. We report the results. Of course, by the time a finding becomes a theory, it needs a whole body of additional empirical support.

However, the objective of every research is to test, modify, or generate a theory. Since we have a lot of theories already existing, we often begin with a theory (theoretical framework) and generate a hypothesis based on the theory. Then we go on to test the hypothesis by means of data. If the data supports the hypothesis then the theory becomes more valid. If it does not, we discuss how the theory could be modified.

## **1.4. Five Canons of Induction**

As described above, science basically employs a method of acquiring knowledge that is referred to as "induction". Induction is a process of arriving at a general conclusion (theory) based on the pattern that emerges from specific instances (data). The opposite process is also possible. For instance, when we use an existing theory to generate a hypothesis, we are using deduction. Deduction is a process of knowledge in which a general principle or a theory is applied to understand and predict a specific instance. If you use an existing theory to form your Theoretical Framework, then this is deduction. On the other hand, after collecting data if you generate a model based on the emerging pattern, then you are using induction. Actually, most research projects employ deductive-inductive method. However, deduction presupposes the existence of general principles which were generated by means of induction. Therefore, in order to use the scientific approach, a researcher needs to understand the rules that govern induction.

Duns Scotus (1266-1308) and William of Ockham (1287-1347) proposed two rules of induction: the schema of agreement and difference. Expanding these two rules, John Stuart Mill (1893) put forward the five canons of induction. He said that the scientific law or theory is justified only if the evidence in its favour conforms to this inductive schema.

1. ***Method of Agreement:***

Consider the following data that involves four instances:

|  |  |  |
| --- | --- | --- |
| Instances | Circumstances | Effect |
| 1. | ABCD | e |
| 2. | ACE | e |
| 3. | ABEF | e |
| 4. | ADF | e |

In all cases where 'A' occurs among the instances, the effect ‘e’ also occurs. Therefore, ‘e’ can be attributed as the effect of 'A', or 'A' is the cause of 'e'. Consider an example from daily life: John, James, Philip and Thomas complain of stomach ache. On enquiry, we find that:

1. John had eaten ugali, fish, and spinach.

2. James had eaten ugali, fish, and sukuma-wiki.

3. Philip had eaten pasta, fish and spinach

4. Thomas had eaten rice, sukuma-wiki and fish.

What is common among the four sets is fish. Therefore, the stomach ache could be attributed to fish. Then further investigation will have to be carried out in order to establish what was wrong with the fish.

1. ***Method of Difference:***

Consider again the following data that involves four instances:

|  |  |  |
| --- | --- | --- |
| Instances | Circumstances | Effect |
| 1. | ABC(-D) | -e |
| *2.* | ACE(-D) | -e |
| 3. | ABE(-D) | -e |
| 4. | BCE(-D) | -e |

In all the above cases, whenever 'D' is absent effect 'e' is also absent. It is assumed that 'D' is usually present, however, during the time of recording data it was absent. There was no way of testing I and 'e' together. Hence, 'D' is attributed as the cause of the effect Consider this example, We go to fish:

1. it is windy, sea is rough, Engine boat, and no moon - there is no catch of fish

2 it is windy, it is drizzling, and no moon - there is no catch of fish

3. it is drizzling, we have an engine boat, and no moon - there is no catch of fish

From the above cases, it is possible to assume that the presence of moon is the cause of catch of fish. Remember, this is only an example.

1. ***Method of Agreement and Difference:***

This method combines the first and the second canons. This is the most sure canon among all canons to establish cause-effect relationship. Consider the data set below:

|  |  |  |
| --- | --- | --- |
| Instances | Circumstances | Effect |
| 1. | ABCD | -e |
| 2 | ACF | -e |
| 3. | BDF | -e |
| 4. | CFB | -e |

In the above cases, whenever 'A' is present, effect *'e'* is also present. When 'A' is absent, effect 'e' is also absent. Hence 'A' is the cause of 'e'. Here is an example:

1. Whenever James plays, his team wins the game.

2. Whenever James does not play, his team does not win the game.

3. Therefore, James is the one who makes his team win.

1. ***Method of Concomitant Variation:***

The conclusion in this canon is based on the degree or the level of the presence of the cause that corresponds to the varying degree of the effect. Consider the data below, the variation in circumstance 'A' is accompanied by the variation in effect 'a'. Hence their relationship can be established in the data set below:

|  |  |  |
| --- | --- | --- |
| Instances | Circumstances | Effect |
| 1. | A+BC | a+b |
| 2. | A0BC | a°b |
| 3. | a-bc | a-b |

Here is an example:

1. When it rains a lot on the hills there is a lot of water in the river.

2. When it rains less there is less water in the river.

3. Therefore, rain is the cause of water in the river.

1. **Method of Residue:**

This is the most used canon in daily life. Here is the dataset:

|  |  |  |
| --- | --- | --- |
| Instances | Circumstances | Effect |
| 1. | ABCD | abed |
| 2. | B | b |
| 3. | C | c |
| 4. | D | d |

In the above cases, 'A' is the cause of 'a', since 'B' alone corresponds to 'b', and *'C'* alone to 'c', and 'D' alone to 'd'. Here is an example,

Everyevening we play basketball. My friends Mulenga, Mutisya and Mahenge join me for a game. When all the three of them come there is a bicycle, a motor bike and a car. I know Mulenga comes by a motor bike and Mutisya comes by car. From this I can conclude that Mahenge comes by bicycle though I have not seen him come by one.

# **2**

# **RESEARCH EPISTEMOLOGY**

## **2.1 What Is Epistemology?**

Epistemology seems to be a big term. But it is not a monster! Epistemology is the theory of knowledge. Simply, it is knowing about knowing! It is concerned with the nature and scope of knowledge. It enquires into what knowledge is, how it is acquired, and the possible extent a given subject can be known. In other words, it answers questions such as: How do we know what we do know? What means are suitable to acquire knowledge?

There are different approaches in epistemology, depending on the method of acquiring knowledge that we give importance to. As far as research methods are concerned, we will focus only on three epistemological frameworks: positivism, social constructivism or constructivism, and critical realism. There is also Grounded Theory approach that is part of the social constructivist approach.

## **2.2 Positivism**

It is a theory of knowledge that holds that reality (things that exist outside us) is a single unitary world that can be accessed objectively through the scientific method ('Naive Realism). The scientist can stand 'outside' this real world and observe it without bias. Things out-there measurable and quantifiable! What is measurable is reliable!

hencea research using the positivist perspective will focus on qualitative methods. This approach is preferred in science, because objective facts accumulate to support universal laws; and the purpose of science is to establish universal laws. Using this approach facts can be separated from values and experiences, and people's opinions.

## **2.3. Social Constructivism**

This approach in human knowledge holds that there is no unitary 'real world'. There are only socially constructed worlds. The notion **of** 'reality' is itself a social construct. Therefore, all perspectives of reality are equally valid (at least potentially). The scientist is a participant in his/her socially constructed world. Therefore, objective measurement is not possible. Moreover, quantitative methods further a particular power agenda and give an illusion of objectivity.

Therefore, we need to use qualitative methods of research. collective descriptions based on participant observation could eventually accumulate to provide a meta-view (theory) of reality!

## **2.4. Grounded Theory Approach**

This is an approach that is based on social constructivist epistemological framework. It was developed since 1965 by Glaser and Strauss, the key text being Glaser and Strauss (1967), *The discovery* *of grounded theory.* According to them, qualitative research is capable of going beyond description to generation of "explanatory theoretical frameworks".

This approach aims at constructing middle-range theories (Merton). "Stated simply grounded theory methods consist of systematic yet flexible guidelines for collecting and analysing qualitative data to construct theories 'grounded' in the data themselves" (Chamaz, 2006, P.2)

Theory is generated by means of coding the data meticulously, "Coding means that we attach labels to segments of data that de­pict what each segment is about. Coding distils data, sorts them, and gives us a handle for making comparisons with other segments of the data**"** (Chamaz, 2006, p.3). You will find more details about coding in the section on data analysis!

## **2.5. Critical Realism**

This epistemological position is critical of both positivism and social constructivism. At the same time, it embraces both. The answer is in the middle. Critical realism holds that there may be a single unitary world but this cannot be accessed objectively through the scientific method. The scientist cannot stand 'outside' this real world. S/he is a participant in it and can never completely eliminate bias.

Therefore, both quantitative and qualitative methods need to be used especially if your target of research is social realities involving people. Quantitative methods can help a lot but the theories and research questions are vulnerable to bias and agendas, especially in human and social sciences. Scientific theories are cognitive constructs or provisional explanations of observations. Facts cannot easily be separated from values! Qualitative methods capture perceptions, experiences and values of participants. Mixed method is the approach of using both quantitative and qualitative methods of data collection and analysis.

## **2.6. Difference between Qualitative and Quantitative Methods**

What does quantitative method consist of? It involves a large sample, collecting data that are numeral, and picking up the emerging pattern to generate or test theories. What does qualitative method of research consist in? Adoptinga social constructivist epistemology, qualitative method explores the experiences and perceptions of participants. It targets a small sample size, goes in-depth about their experiences, reduces the experiences into textual data, attempts to identify patterns in those experiences, and generate a conclusion. Here is a table that compares and contrasts the two.

|  |  |
| --- | --- |
| **Qualitative Approach** | **Quantitative Approach** |
| * Explores the experience and perception of participants regarding a phenomenon * Collects and analyses ver­bal/textual data * Sample size is usually small * Aims at exploring the phe­nomenon and hypothesis generation * Uses intersubjective meth­ods - the researcher is part of the researched! * Idiographic: Description of individual experiences | * Focus on measurable aspects of the experience * Uses numeral data * Uses large sample size * Description, explana­tion and hypothesis testing * 'Detached’ observa­tion (objective) * Nomothetic: gener­alisation of patterns in order to test/generate a theory. |

Research

Data Based Research (Empirical Approach)

Literature based

research

Quantitative

data

Quantitative

data

Deduction

Conceptual propositions

Hypotheses

Induction

Inference (often deductive)

Elucidation

Scientific conclusions

Metaphysical

conclusions

# **3**

# **OUTLINE OF A RESEARCH PROPOSAL AND REPORT**

You will do well by having a good look at Figure 3.1. for some time**.** Trace the pathways. What do you see? You might have to keep coming back to this illustration throughout this chap­ter and the rest of the book.

We begin with the end in mind. Any research should end with a written report - which could be submitted as a thesis/dissertation for academic purposes, or presented to the organisation that commissioned the study, or published as an article in a journal. Usually, the article in a journal is very brief, while a thesis is pretty long. But the sequence of the narration is the same. We will focus on a thesis here, but the outline for an article is included at the end of this section.

A thesis could be subdivided into chapters - generally six chapters. Remember: this is only a recommendation. Every university and department might have its own requirements. The logic is the most important element.

The size of every section will depend on the scope of your work: if it is a BA final paper it will be longer than if it is a term work. Surely, a MA thesis will be longer than the BA paper.

**Abstract**

1. The length of an abstract could vary from 50 to 500 words, depending on the type of work. It is important to be meticulous about the word-length, as required by the department or the publishers.

2. The language is to be very concise: do not say in more words what could be said in fewer words. Make a considered choice of your vocabulary. Use academic language.

3. The content of the abstract includes the 'whole story' of your work: background to the problem, the unknown (gap), the aim of the present work, theoretical framework, hypothesized outcome, method(s) used, results reported, and the implications discussed.

4. Generally abbreviations and citations are avoided in an abstract - if possible.

5. A good abstract is written in such way that the reader will have a fairly good idea of the whole work, and be enticed to read the whole of the work. There is no need to create suspense as in a movie trailer, but the style has to show seriousness and a promise of offering something unknown hitherto.

# **CHAPTER 1: INTRODUCTION**

## **1.1. Background to the Problem**

You remember that we said every scientific enquiry begins with an experience. Without talking about your personal experience, de­scribe that phenomenon that you want to study.

You will have to use some literature here - using texts that describe the phenomenon.

## **1.2. Statement of the Problem**

There is a subtle difference between Background to the Problem and Problem Statement, in that, Background describes the phenom­enon, the Problem Statement points out to the knowledge-gap about the phenomenon.

Problem statement cannot be carried out apart from literature re­view. In short research proposals and reports, the problem statement is discussed together with literature review. However, in disserta­tion projects since the literature review might be handled in a sepa­rate chapter, the introduction presents a summary of the literature review in terms of pointing out to the gap in knowledge/literature, thus establishing the problem for the study.

It is important to note that problem statement may also consider a controversy or an existing debate about the problem and pose that as the problem statement for the study.

In any case, this statement actually justifies the necessity for the present study.

For example, say, your research questions is: What type of people are more vulnerable to sexual abuse? In the background, you will talk about sexual abuse in general: its prevalence, known predictors, etc. In problem statement, you will talk about what we know about sexual abuse and what we do not know. Suppose we actually do not know what characterises the vulnerable population, then the present study is needed.

When this section has been well-written the objectives will logically follow. The tone of this section should be: we know this, we I know this, but we do not know this about the problem. Therefore, the objectives of the present study are...

## **1.3. Objectives of the Present Study**

Introduce the objectives with a sentence or two. Then list the objectives. You may number them. The objectives should not be I too many. You may divide them into general objective and specific objectives.

Follow a logical order: go from the simple to complex. The last objective should be the climax of the research, directly related to the title of the study.

Generally, the objectives begin with an infinitive - for instance: to explore, to elucidate, to verify. Choose the verbs according to the strength of the method that you are going to use in responding to that objective (See Table 5.1).

Do not use two verbs in one objective: Here is a bad objective: To explore and to test the influence of variable A on variable B.

If you are using mixed method, make sure of the order. You will have separate objectives for qualitative and quantitative design.

For purequalitative design, the objective should be simple and straightforward: focusing on the experience and perception of participants.

## **1.4. Research Questions**

Convert your objectives into questions. Maintain the same order. You might break down one objective into two or more research questions.

Some universities suggest to have either the set of objectives or the set of research questions. Some recommend to have both. Follow guidelines offered by your department for academic research. For commissioned studies (outside academics), I suggest, you have only one set - either objectives or questions; however, it is possible to breakdown your objectives into more than one research question.

## **1.5. Hypotheses (if any).**

Each of the quantitative research questions, particularly those that are going to use inferential statistics, could have a hypothesis. For qualitative design hypothesis is not recommended, because such a design only generates a hypothesis. In other words, qualitative approach cannot test hypothesis.

## **1.6. Scope & Delimits of the Study**

Delimits are not same as limitations. Limitations are weaknesses; 1 suggest that limitations be mentioned in the conclusion to the study. You cannot start with weaknesses. Limitations are unforeseen weaknesses in the study, you cannot cite them in the beginning.

However, you have to define your delimits of the study before you begin the study, which includes the extent to which you want to stretch your study. In other words, under what parameters are you going to make your study doable.

Scope, very closely related to delimits, refers to the disciplinary boundaries of the study — under which field are you carrying out your study?

# **CHAPTER 2: LITERATURE REVIEW**

## **2.1. Conceptualisation of Constructs**

**(Theoretical Literature Review)**

Constructs refer to the variables of your study. Variables are constructs, whose association you are examining in relation to the phenomenon under Investigation.

Begin with a discussion on the conceptualisation of the variables used in the study with a good use of literature.

How have other authors defined these variables; how are they going to be used in the present study? Just including your variables in a list of operational definitions will not be enough for a serious study.

## **2.2. Literature Related to the Objec­tives (Empirical Literature Review)**

Each of the objectives is taken and the literature related to them are pre­sented in a thematic scheme. Do not create a "laundry list" of who said what without any thematic grouping.

Systematic Literature Reviewcould be used here for each objective. See a later chapter for more details.

**Box 3.1. Myths and Truths about use of Literature**

***Myth 1: You should use books for literature review.***

We live in times of tremendous possibilities for research. The library of e-resources (not just what is available to the general public by means of internet but what libraries could offer) give us instantaneous access to millions of articles from peer-reviewed academic journals. They need to be used in plenty.

***Myth 2: You should use only sources that are five years old.***

While it is a rule of thumb to ensure that you cite sources that are up to date, this should not be absolutized. There are classical and seminal works that might be "old" and must be cited in relation to conceptualisation of some variables.

## **2.3. Theoretical Framework**

Present very briefly the theories used in previous studies related to the present study. State the theory chosen to be suitable for the present study. Answer the following questions: Who are the proponents? What are the components of the theory? How has the theory been previously used in other studies? How is it going to be used in the present study - justify your choice?

For studies using grounded theory approach, a theoretical framework including a specific theory is not needed. After all, the grounded theory approach simply negates all existing theories. The objective of the grounded theory approach is to generate a theory from data. If you choose a theoretical framework, you are going to test the theory: does it adequately explain the phenomenon under study?

## **2.4. Conceptual Framework**

If the variables of the present study are looked at from the perspective of the theory above, how do they associate to each other? Visually represent the hypothesised relationship between the variables. Show sophistication. Break down your variables into sub-dimensions. Describe the arrows and the envisaged relationship represented in the diagram. See a later chapter for more details.

## **2.5. Hypotheses (if there are)**

Some authors suggest that the hypotheses be listed at this point, for the following reasons:

a) conceptual framework is hypothetical. If well illustrated, the arrows will provide the hypothesised associations between variables, which are nothing but the hypotheses;

b) logically, hypotheses should flow from what we know and from the theoretical framework - both are in the literature review;

c) soon after the list of hypotheses, it is logical to have the method chapter, because the method will tell the reader how the hypotheses are going to be tested.

# **CHAPTER 3: METHOD**

In this chapter, the following subsections could be provided. Always introduce the chapter before you go on to the subsections.

For each of subsection, make sure that your description clearly answers the following questions:

a) What method did you employ?

b) What does this method consist of (quote from a book on research method)?

c) Why did you choose this method?

d) How would/did you put it into practice in the present study?

## **3.1. Research Design**

Say what is your research design: qualitative, quantitative, or mixed? Is it cross-sectional or longitudinal? Correlational or Experimental design? Case-study? Etc. (All these terminologies you will understand as we go ahead further with these notes.)

Justify the use of the particular design, if possible, point to the underpinning epistemological framework.

## **3.2. Participants**

Report how your participants were sampled: sampling technique. Depending on your research question you might have to choose between probability and non-probability sampling techniques. Say: what technique did you employ, what does it consist in, why did you choose it, and how did you put it into practice in your study?

Report sample size: this is the number of participants in the study; I Spending on your research design you will have the freedom to determine the sample size. Justify your choice.

Give brief summary details of any relevant characteristics of the participants. More details could be included in the results reporting demographic details.

## **3.3. Instrument**

What is the method and instrument that will be used for your data collection. Again, this will depend on your research design. Describe the instruments used (questionnaire or interview guide).

In quantitative research works, begin by pointing out very clearly and distinctively the variables of your study. Then go on to say how you are going to measure the variables. Try to dedicate a separate paragraph for each variable. Say what items will measure which variable; always justify your choices. In quantitative research, you will also have to report the reliability and validity of the instrument. More about this in a later chapter.

Include the instruments in the appendix. Say in the main text that it is included in the appendix. Never include material in appendix that are not mentioned or referred to in the main text.

## **3.4. Procedure:**

Briefly describe the location; how was the data collected? How did you have access to the participants? Did you have a research assistant? Were the participants remunerated?

## **3.5. Data Analysis:**

Describe how the data was transcribed and analysed. If you conducted interviews, for instance, what steps did you take between the data collection and the results? For qualitative design, you will have to choose between thematic analysis, content analysis, narrative analysis or discourse analysis. State: what method you employed, why, and how did you put it into practice?

Quantitative research designs will require statistical analysis: de­scriptive and inferential analysis. Point out clearly which type of anal­ysis is used for each research objective. Do not be too generic here.

## **3.6. Ethical Issues:**

How did you handle the ethical issues of data collection: confidentiality, informed consent, freedom to withdraw, etc.

A Research Proposal Ends Here.

## **Chapter 4: Results**

First section could be on the demographical details of the sample;

In a quantitative study, you may include a section on reliability of the instruments, where you are reporting the statistical test for reliability.

The rest of the chapter's outline should correspond to the objec­tives; follow the same logic; convert the objectives into titles.

You may summarise the findings at the end.

## **Chapter 5: Discussion**

Begin with the statement of the objectives of the study, discuss if the objectives were met. Did you find answers to your research questions, to what extent?

Even here the chapter's outline should be corresponding to the objectives; follow the same logic; convert the objectives into titles. However, here discuss the implication of the findings for each objective; discuss how the findings of the present study relate to the known literature.

What are the correspondences between the old (literature review) and the new (results). What is new? What are the surprises? Discuss what would have contributed to the surprises — particularly if the hypotheses are not supported.

## **Chapter 6: Conclusion**

Point out the specific original contributions of the present study to human knowledge: What are the insights emerging from the study for your discipline (Recommendations for policy).

Point out to the limitations of the study - argue why despite the limitations, your findings are valuable.

Suggest some future orientations (recommendations for research) - how could the study be improved in the future.

## **References**

Make sure all your cited works, and only the cited works, are referenced completely.

Every entry is in hanging indentation; all entries are in alphabetical order.

In APA, there is no need to number the entries; there is no need to have subsections within references.

## **Appendices**

Include the instruments used in the study in its original format. Include any other relevant material.

What this section has dealt with is to present the narrative of the outline of a research report. Box 3.2. points out the differences between research proposal and research report. Table 3.1. provides on outline for a short research report in addition to a thesis research proposal and report. It is important to remember that a thesis is an academic exercise. Research itself is beyond academic exercise. See Appendix A and B for an actual short research proposal and report.

**Box 3.2:**

**Difference between Research Proposal and Research Report**

|  |  |
| --- | --- |
| **Research** Proposal | **Research Report** |
| * The tone is to convince the reader that the proposed study is very crucial to enhance lives of people - it is worth investing on; it is as if you are making a pitch for your product * The need for the research is created by pointing to the gap in knowledge ("Problem Statement"); the objectives need to be very clearly stated promising to fill the gap. * The verb in the method section is in future tense. However, it does not sound provi­sional; the proposal demonstrates confidence that it is doable and the author is capable of doing it. * Delimits may be discussed but at this stage limitations may not be known. | * The focus here is on the findings and   their implication. However, do not lose the  main aspects of the proposal: knowledge  gap, the objective, and the clarity and  comprehensiveness of method.   * The verb in the method section is in past   tense. Do not say what you wanted to do,  just say what you did.   * The results and discussions need to be   clearly presented and their implications  pointed out.   * Point out also the limitations, while   proposing ways of improving the study in  terms of future orientation, also argue why  despite the limitations the findings are valid. |

## **Table 3.1.**

**Outline for Research Proposals & Reports**

|  |  |  |
| --- | --- | --- |
| **APA Recommended Outline for**  **short research report (a journal**  **article)** | **Outline fora Thesis Research Pro­posal** | **Outline for a Thesis Research Report** |
| **Abstract** | **Abstract** | **Abstract** |
| **Introduction**  (without subtitles the following ele­ments are included)  Background to the Problem  using Lit.review  Statement of the Problems  using Lit.review  Objective of the present  study  Research questions  Hypotheses (if any).  Scope & Delimits of the  study | **Chapter 1: Introduction**  Background to the Problem  Statement of the Problems Objective of the present study Research ques­tions  Hypotheses (if any).  Scope & Delimits of the study | **Chapter 1: Introduction**  Background to the Problem Statement of the Problems Objective of the present study Research questions Hypotheses (if any). Scope & Delimits of the study |

|  |  |  |
| --- | --- | --- |
|  | **Chapter 2: Literature**  **Review**  Conceptualisation of Constructs Review of Lit­erature related to objective  Theoretical Frame­work  Conceptual Framework | **Chapter 2: Literature Review**  Conceptualization of Constructs  Review of Literature related to  objective  Theoretical Framework  Conceptual Framework |
| **Method**  Research Design Participants (Sampling pro­cedure & size) Instruments  Procedure  Data Analysis  Ethical Considerations | **Chapter 3: Method**  Research Design Participants (Sam­pling procedure & size)  Instruments Procedure Data Analysis Ethical Considerations | **Chapter 3: Method**  Research Design Participants (Sampling proce­dure & size) instruments Procedure Data Analysis Ethical Considerations |
| **Results**  Demographic Details Sub-sections according to research questions |  | **Chapter 4: Results**  Demographic Details Sub-sections according to re­search questions |
| **Discussion**   * Revisit the research questions, say if they have been answered, or the hypothesis supported or rejected by the data. Any sur­prises? * How does the present findings interact with the already known (from literature review)? |  | **Chapter 5: Discussion**   * Revisit the research questions, say if they have been answered, or the hypothesis supported or rejected by the data. Any surprises. * How do the present findings interact with the already known (from litera­ture review) |
| **Conclusion**   * Point to the limitations of the work; Suggest future orienta­tions. | **Chapter 4: Conclusion:**  Envisaged impact of the  study  Limitations of the study &  Future Orientations | **Chapter 6: Conclusion:**  Summary of Findings; Envisaged impact of the study;  Limitations of the study & Future Orien­tations |
| **References** | **References**  **Appendices** (include the instruments) | **References**  **Appendices** (include the instruments) |

# **4**

# **CHECK LIST FOR A RESEARCH PROPOSAL**

Before you hand in a research proposal, why not assess your own paper and see if you have captured the following aspects clearly:

**Title:** Is it precise and not generic? Make it specific by add­ing the method of study and the location.

**Abstract:** Does it say the complete story? Everything that is going to be written should be summarised. It is a standalone piece of writing that gives a clear idea of what is proposed. It should be precise and concise. Avoid citations in the abstract.

**Outline:** For short proposals and reports there is no need of chapters, the literature review forms part of the introduction. For long proposals of thesis, it is important to divide the content into chapters. Each chapter begins on a separate page, and is treated as the first level of heading in two lines *-* centred. See APA guidelines for levels of heading.

**Objectives and Research Questions:** Are the objectives and the research questions matched with each other and with the title of your research? Are they very carefully phrased? Research questions may be more in number compared to the objectives but all objectives should be covered by the research questions.

**Hypothesis:** In a qualitative research, there is no need of the hypothesis. In quantitative studies, there could be a hypothesis; null hypothesis is used only in research works that use inferential statistical analysis.

**Literature Review:** Does it have an argument? Have you Conceptualized your variables, and adequately reviewed the hypothesised relationship between them?

**Method:** In the proposal, have you realised that this is the most Important chapter?

***Research Design:*** Choose appropriate method to the research questions ant the research paradigm (qualitative and/or quantitative). There is no need U multiply the methods of data collection. Choose one or two methods and consistent.

***Sample size:*** Quantitative methods have a large sample size (depending or the scope of your work: a term paper, or a BA or MA thesis). Qualitative] method has a small sample size. Focus group discussions will have numbers than the interviews.

***Sampling Process:*** Be transparent about sampling process and be consistent;] if probability or non-probability. Random sampling is a probability sampling] & it is a very difficult process used when null hypothesis is employed.

***Instrument:*** Every method of data collection mentioned above should] have its instrument described in the main text and added in the appendix.1 The word self-administered refers to a questionnaire that is filled by the! participants themselves. In quantitative studies, see that all your variables! are adequately measured - do not use different terminologies across the1 work to refer to your variables (e.g., marriage stability is not same as marriage satisfaction). Review your quantitative instruments: who are the authors; how many items; how many dimensions; how is the scaling; have reliability *\* and validity reported in previous research mentioned and discussed?

***Analysis:*** Should be precise and appropriate. Choose between thematic analysis, content analysis, discourse analysis or narrative analysis for, qualitative research. For quantitative analysis, say if you use descriptive analysis, and/or comparison of means (T-test; ANOVA), Correlation, Chi-square, etc. Mention also what variables will be used for this analysis. Check if your research questions will be answered by your choice of analysis.

**References**: Have you followed APA style very strictly. Make sure all that the referenced sources in the main text are included in the reference list. Always use Author, Year in the main text; avoid URLs within main text. The entries in the list are arranged in the alphabetical order with hanging indentation.

See: Chapters 15 and 30 for Checklist of Research Report

# **5**

# **FROM A RESEARCH PROBLEM TO RESEARCH OBJECTIVES**

## **5.1. Identifying a Research Problem**

What is a research problem? To begin with, a research prob­lem is a situation that is experienced by an individual or a group of people. It could be existential or theoretical

This in itself does not immediately become a problem for research

without taking into account the following:

1. This problem has not been adequately explored or explained in the past by previous studies. Thus, a research problem is nothing but a gap in human knowledge. A gap is not always an absence of literature. It could be that no one has questioned the assumption of an existing theo­ry (Alvesson & Sandberg, 2011).
2. In other words, existing explanatory system (theory or model) is not adequate enough to explain all the dimensions of the phenomena. There are too many anomalies (Kuhn, 1962/2012) that challenge the existing paradigm created by the theories.
3. Therefore, to qualify as a research problem, it should raise or solve a controversy A research problem questions the status quo or common sense understanding of human experience of reality. Consider, for example, a study entitled, "Successful Teenage Marriages: A Qualitative Study of How Some Couples Have Made It Work" carried out by Boykin (2004), who completed a Master's degree in Virginia Polytechnic Institute and State University, USA. People generally carry out studies on the problem of teenage marriages, but what is interesting about the thesis of Boykin is that it looks at the other side. Thus, it questions the status quo. However, if you are an upcoming researcher, you might want to be more modest about this scope (Kothari, 2004, p.25).
4. The chosen topic for an empirical study should hold promise to make a new contribution, attempting to fill a gap in human knowledge. If not, the research can be claimed to be just a literature review, a summary of existing studies.
5. More precisely, the gap could be any of the following:

a. The research topic itself - it is a topic that has never been researched, probably it is a new situation in the society.

b. The location or population of study - the theory has been tested among certain types of people; but has never been tested among a new population.

c. The methodology- say, most of the reported studies are quantitative in design. They lose sight of the experiences and perceptions of individuals in that situation; hence a qualitative design is needed!

For the above reasons, a research problem cannot be formulated well without an adequate literature review. It is the literature review that will throw light on the gap. Even though problem statement might appear in the introductory chapter and literature review is dealt with in the subsequent chapter(s), the problem statement presents a brief review of literature with an aim of briefly pointing out to what is known and what is not known, thus justifying the study.

## **5.2. Framing the Research Questions or Objectives**

Once you have identified the research problem, now you have to frame the research questions. Research questions could be of different categories (see, Cohen, Manion, & Morrison, 2011; Gray, 2009, pp.134-135):

a. *Descriptive questions:* attempt to answer questions such as: "What is happening?", "Which methods are being used?"

b. *Normative questions:* try to compare a specific situation in relation to what is expected against a standard. The standards could include programme objectives or legal requirements.

c. *Association question:* what is the relationship or association between two or more variables; Association could be understood in two ways: as an influence or as correlation. Correlation is an association between two variables such that the variation in one variable is accompanied by variation in the other;

d. *Comparative question:* is there a difference between two groups on their scores on one variable;

e. *Antecedent question*: examining the cause or factors of a phenomenon;

f. *consequent question:* similar to the above this consists in identifying the outcome or effect of a particular situation.

It is important to note that If your objectives and questions are going to be mere repetition of the same, it is better to choose one rather than both. You could have a generic research question and a net of subsidiary or specific questions.

## **5.3. Phrasing of the Research Questions**

Evaluate the weight of the terms you use in phrasing research objectives and questions: for instance, 'explore' is not same as 'explain'; factors influencing a phenomenon may not always include the 'cause'; 'impact' is not same as 'effect' (Andrews, 2003, pp.9-11). Words such as 'cause' and 'effect' need to be used with some caution. Research projects that can establish cause and effect relationships require randomised experiment or quasi-experiment design. You could use terms such as 'factors' and 'antecedents' instead of 'cause', and 'consequents', and 'outcome' in the place of effects.

From the phrasing of the questionnaire the reader should be able to make out what is the research approach of the research. Table 5.1. presents a list of verbs for objectives and points out what type of research paradigm best suits them.

**Table 5.1:**

**Phrases for Research Objectives**

|  |  |
| --- | --- |
| Terms | **Type of Research** |
| To explore | Qualitative design or Quantitative using de­scriptive statistics |
| To elucidate | Could be either qualitative or quantitative that aims at proposing a model |
| To examine... | Qualitative design or Quantitative using descriptive statistics |
| To compare | Quantitative design - comparison of mean scores. |
| To establish | Quantitative design - with inferential statistics |
| To test | Quantitative design - with hypothesis testing |
| To explain (the causal relationship between two variables) | Experimental design |

Similarly, in phrasing of the title and the research questions tin-method of the study could be captured in the terminology that is used. See Box 5.1 for further guideline on how to match research questions with your research paradigm.

**Box 5.1:**

**Phrasing the research questions**

|  |  |
| --- | --- |
| **Qualitative Questions** | **Quantitative Questions** |
| What is the experience... | What is the extent... |
| What is the perception... | What is the level... |
| What are the factors... | Is there an association/correlation. |
| What are the outcome... | Is there a difference between... |
|  | What is the predictors/cause... |

## **5.4. Topic Versus Title**

Topic and Title are not the same things. Topic is the general area ofyour enquiry. Whereas, title is how you capture your topic in a phrase that brings out the main problem and method of your enquiry.

The way a title is phrased brings out the approach of the research. Qualitative studies use phrases such as perception and experience, while in a quantitative study the variables of the study

should appear as far as possible.

**Box 5.2**

**How to frame a Research Title:**

1. A good title is not too long. Recommended length is 12 words.

2.For a quantitative study, make sure that variables appear in the title. However, this may not be always possible.

3. For a qualitative study, include phrases such as, "experience" and "perception" in the title. This will suggest the method already.

4. Subtitles are allowed. They expand the title in terms of population and method. The subtitle is separated from the title by means of a

colon (:).

# **6**

# **SYSTEMATIC LITERATURE REVIEW**

The purpose of this section is to provide rationale for what has been presented in the outline of the research report. There is no need to repeat whatever has been already said therein. However, we will focus on three major purposes of the literature review:

a) To clarify the meaning of constructs (variables) involved in the study, from the perspective of existing literature;

b) To find out what we already know about the problem under study, so that we can also identify gaps in the literature;

c) To consider the possibility of using an existing theory to explore the problem under study.

Literature review works on the assumption that "we stand on the shoulders of giants". And that: we do not need to invent the wheel. We need to know what we already I know, so that we can add new knowledge through our own research to the body of human knowledge.

## **6.1. Conceptualisation of Constructs (Theoretical Literature Review)**

We can explore how other authors have defined the variables of the study. What are their strengths and weaknesses? Can we adopt any of them? More was said, in the section on general outline of a research report.

## **6.2. Finding Gap in the literature (in the Empirical Literature Review)**

For each of the stated objectives, we have to find out what other researchers have already stated, so that we can find the gap.

What is the gap in research? The gap can be in the method (previous studies have used quantitative; no qualitative study has been carried out), or population (previous studies have been

carried out among Caucasian population; no study has been carried out among African population), or it could be a nuanced research question.

Sometimes even a replication of a study is justifiable. Systematic literature Review could be used here for each objective.

## **6.3. Theoretical Framework**

Present very briefly the theories used in previous studies that are related to the present study; State the theory chosen to be Suitable for the present study; Answer the following questions: who are the proponents? What are the components of the theory? How has the theory been previously used in other studies? How is it going to be used in the present study — justify the choice?

## **6.4 Systematic Literature Review (SLR)**

SLR is an orderly manner of searching for academic literature, selecting relevant literature following a set of inclusion/exclusion criteria, qualitatively analysing the selected literature, and reporting the findings in such a way as to generate a set of hypotheses.

systematic literature reviews are common in medical Sciences and psychology. In these fields of human knowledge, the procedure of meta-analysis, as it is also referred to, attempts to statistically analyse quantitative data to identify, appraise and synthesis available evidence, and on that basis, propose some conceptual or hypothetical conclusions. Often systematic literature review is a quantitative procedure. However, qualitative systematic literature reviews are also increasingly being employed in social Sciences

Selvam 2014;2015).

While quantitative systematic reviews help in evaluating the strength of available evidence in terms of numbers, the qualitative reviews are beneficial in systematically schematising the emerging themes within the selected studies in relation to the research quean of the review.

**6.5. Steps in Carrying Out SLR**

*Following four steps are used in SLR:*

1. Literature Search

(Describe the Process and Creteria)

2. Literature Selection

(Describe the Process and Creteria)

3. Analysis of literature

(with specific research question for this process)

4. Report Findings

(Report all Steps above and Findings)

*Literature Search'.* Choose one or two databases of e-resources such as EBSCOHost. Note that EBSCOHost has several databases - you could opt to choose all the sources therein. Search on a key term re­lated to your topic; use key term - not full sentences. Note down the key term that you used for search - you have to report this. It is better to be very systematic about the key term itself. You may use Boolean formula - if you know what it is!

*Literature Selection:* EBSCOHost is likely to give you many entries. Filter out the entries using criteria such as peer-reviewed articles, full-text available. If they are still a lot to handle, filter out using a time-frame, restricting the number of years. If they are still too many, read through the abstract and filter out. If they are meaningful to you download the pdf version of the articles.

*Literature Analysis:* Read the selected articles in detail. They could be about 25 for a term paper; about 30 for a BA thesis; 40 for a MA thesis; and 50-60 for a PhD thesis. Make a summary of the articles using different criteria: year of publication, major themes covered, methodology used, etc. Report this in tables. Analyse thematically. the contents of the articles.

*Report Findings:* Write a report of the SLR using the above outline. In the findings section, report the emerging themes providing evidence from the selected articles. Discuss the implication of the findings at the end.

# **7**

# **RESEARCH DESIGNS IN GENERAL**

Research Design refers to the overall framework that forms the scope of your study. In this sense, research design is not the exact method that you will use to gather data. Design is a larger framework, within which you will use a particular method to gather data. For example, you could use a case-study research design; and to build-up the case, you might use interview to gather data.

We will begin by discussing what do we actually mention under the section on Research Design, and then focus on some qualitative research designs.

While talking about research design, you might want to answer some of the following questions:

a) Is your study a cross-sectional or longitudinal study?

b) Is your study an exploratory-descriptive or an experimental study?

c) Is it a survey or a case-study design?

d) Is your design using a qualitative or a quantitative paradigm?

Not all these designs would entail the use of qualitative data. We shall first contrast these pairs of terms, and then focus on some typical qualitative designs.

## **7.1. Cross-sectional and Longitudinal Study**

**Cross-sectional studies** involve observation of individuals or groups, or comparison of groups at one specific point in time. It offers a snap-shot of attitudes and behaviours of the participants.

**Longitudinal studies** are generally correlational studies that involve repeated observations of the same variables over long periods of time — often many decades. This is particularly useful in psychology to follow up life-long development.

## **7.2. Exploratory/Descriptive and Experimental Study**

**Exploratory or Descriptive studies** examine the interaction between variables or constructs. **They** could be qualitative or quantitative studies. They do not attempt to establish cause-effect relationship.

**Experimental studies** attempt to simulate the phenomenon; to observe and measure the interaction between variables; in order to establish cause-effect relationship. Generally, they are quantitative in Content.

**Quasi-experiment** is carried out when the phenomenon cannot be fully simulated, but rigorous controlled observation is possible. this method is also referred to as "***ex-post-facto comparison"*** study.

## **7.3. Survey and Case-study Designs**

**Survey research** often provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. It includes cross-sectional and longitudinal studies using questionnaires or structured interviews for data collection with the intent of generalizing from a sample to a popula­tion. It could also use qualitative questionnaires among a large population to establish the perception of the participants.

**Case-Study** is an intensive analysis of an individual unit (as a prison or community) stressing developmental factors in relation to their environment. Case studies comprise more detail, richness, com­pleteness, and variance - that is, depth; a case typically evolves in Him, often as a string of concrete and interrelated events.

## **7.4. Case-study Design**

Chapter II will talk about qualitative surveys, therefore, here we 11.ill focus on case-study.

Case and case-study are relative terms; case can also include a unit ili.it has sub-units within itself. For instance, if you consider Universities in Kenya as the population for your study, then you could choose Tangaza University as a case. But within that university there could be different units from among which you might have to make further choices (sampling). And you might end up collecting quantitative data from these participants. Then it will be a quantitative case study.

Strictly speaking case-study is not a qualitative research design. However, when you have say, only one or two human persons in your study then this is going to be a qualitative research design. You may not be able to carry out statistical analysis with the data from two participants. Let us understand different types of case-studies.

*Type of Case-Study on the basis of number of cases*

a) Person: The study of one single individual, generally using several different research methods.

b) Group: The study of a single distinctive set of people, such as a family or small group of friends.

c) Location: The study of a particular place, and the way that it is used 01 regarded by people.

d) Organisation: The study of a single organisation or company, and tin-way that people act within it.

e) Event: The study of a particular social or cultural event, and the interpretations of that event by those participating in it.

*Type of Case-Study on the basis of nature of the case*

**Intrinsic case studies:** represent nothing but themselves. Un­cases in intrinsic case studies are chosen because they are interestin;1, in their own right. They are unique, exceptional cases. The researchers want to know about them in particular, rather than about a mon-general problem or phenomenon.

**Instrumental case studies:** constitute exemplars of a more gener.il phenomenon. They are typical cases. They are selected to provide the researcher with an opportunity to study the phenomenon of interest

*How to build-up a case?*

In a case-study, the researcher builds up a case, just like .in advocate. At the end of it there is argument that emerges. To build up a case, multiple sources of data gathering have to be employed, such as, questionnaires, in-depth Interviews, observation, and journals of cases themselves (if they are human).

*Characteristics of a good case-study*

A good case-study has the following characteristics:

1. The choice of case study is justified; cases that defy existing theories particularly raise interest.
2. The case-narration is detailed but focused and relevant; the narrative focuses on processes and experiences - development!
3. The narrative is a good blend of objective information and subjective interpretation.

## **7.5 Action Research**

Action research is a special type of a design, a preferred design In social transformative studies and in education. Action research is on intervention-based study whereby the effect of the intervention is examined simultaneously. The intervention is often a project evolved to improve the life of a particular group of people.

'Action research involves the process of actively participating in an organisation change situation whilst conducting research."

Sometimes this method is also known as 'Participatory action research'. Participatory action research encourages researchers to Immerse themselves in the community they are studying and to join with the community in a collaborative manner to address specific community needs or to work toward enhancing the quality of experiences for a particular community (Argyris, Putnam, & McLain Smith, 1985).

For instance, a student of youth studies might come up with a project to train a group of young people, the student could then systematically examine the effectiveness of the programme. On the basis of the findings the project could be further improved and re-examined. This would-be action research.

**How to gather data for Action Research?**

Whatever you do in action research, at the end of it there is a need to report the process. In order to report, you need data. Data could be gathered by using the following means:

1. Field notes by the researcher (reflexive notes);
2. Participatory observation by an external observer;
3. Questionnaires to the members of the intervened group;
4. Interviews among the members or 'stakeholders' of the intervened group.

*Special nature of Action Research*

In action research, there is a deliberate attempt to involve participants as a way of promoting change and as a device to reduce the social distance between researchers and subjects.

Action research aims to increase the ability of the involved community or organisation members to control their own destinies more effectively and to keep improving their capacity to do so (Greenwood & Levin,1998). **See:** Chapter 18 for Quantitative Research Designs

# **8**

# **SAMPLING - GENERAL CONCEPTS**

To understand what is sampling, we need to understand some basic terminologies first (Shorter, 2000, pp.63f):

1. **Population** is the total aggregation of elements from which the sample is selected. Population here may not always refer to people.
2. **Sampling Frame** is the actual list of units from which the sample is selected, for example: a student roster, voters' list, telephone directory, a list of householders in an residential area, a tax roll, etc.

**Element/Case** is a single entry in the population. This unit/case provides the information and the basis for analysis. Usually elements are individual people, but they could also be families, groups, clubs and so on.

## **8.l. What Is Sampling?**

Sampling is the selection of some cases from the whole population of study. Sampling is obviously economical in time and expense. Interviewing a few people is also qualitatively better than Interviewing a great many. It is more thorough, easier to supervise and easier to process.

*Criteria for good sampling*

The ultimate test of a good sample is how well it represents the Characteristics of the population it portrays. Further, two important criteria may be used in carrying out the sampling process:

Generalisability: The likelihood of the findings about the sample true of the entire population.

Transferability: The likelihood of the findings about this sample transferrable (applicable) to another population in similar situations and settings.

## **8.2. Sampling Techniques in General**

Largely speaking, there are two major types of sampling; Probability sampling and Non-Probability Sampling.

**Probability sampling:** A sample that can be shown to be highly representative of the whole population - or all the potential cases -in terms of relevant criteria. In other words, probability sampling techniques ensure that all elements in the population have equal opportunity of entry into the sample.

**Non-Probability Sampling:** In simple terms, it is a set of sampling techniques whereby all elements in the population do not have equal opportunity of entry into the sample.

## **8.3. Probability Sampling Techniques**

**Simple Random Sampling** is the basic method used in surveys, the researcher identifies the sampling frame and assigns a number to each element. Elements are selected at random. Randomness con be ensured by drawing names, or lots, or numbers, and so on, out of a hat or selecting them with the help of a computer.

**Systematic Random Sampling** is the most widely used method of sampling. From a sampling frame, the researcher chooses ele­ments at predetermined intervals to ensure that one ends up with, a manageable sample. For example, in a sampling frame of one thou sand elements, one might select every 10th element to interview, this would produce a convenient sample of one hundred elements

**Stratified sampling** occurs when a whole population is divided into a number of mutually exclusive sub-populations (or strata) A simple random sample is then taken within each stratum. For example, a multi-ethnic population could be divided into ethnic sub-populations. Such stratification is statistically efficient. Strata are internally homogenous but externally heterogeneous. They therefore provide an excellent basis for comparative analysis of differing groups.

**Cluster sampling** is when a population is divided into groups of elements. And some groups are randomly selected for study as representative of the whole population.

While strata in stratified sampling, are internally homogeneous and externally heterogeneous in cluster sampling the groups are internally heterogeneous but externally (as clusters) homogeneous. Clusters may be of unequal size for example this is the case with the Clusters of households that make up block estates or city wards in Nairobi. What is important is that the clusters are homogenous, in such a way that they represent the parent population.

## **8.4. Non-Probability Sampling Techniques**

**Purposive sampling:** A sample of selected cases that will best enable the researcher to explore the research questions in depth.

**Theoretical sample:** A sample of selected cases that will best enable the researcher to explore theoretical ideas.

**Convenience Sampling** is simply the case when researchers **have** the freedom to choose elements from informal pools of friends, neighbours or contacts or when newspapers invite their readers to state their views on some public issue. It is often a form of exploratory research or exploratory quantification.

**Snowball Sampling** or Chain Referral Sampling: is the case Win-re the first participants of the study recruit future participants (Mm among their acquaintances. Thus, the sample group appears to flow like a rolling snowball.

It is used particularly when a sampling frame is not available... (particularly when the subject under study is very sensitive.

**Some Points to Note**

Some student-research reports use the term "random sampling" when they have actually used convenience sampling. Do not use the word, "random" at random while talking about sampling.

When random sampling is claimed to be used the report should immediately mention the sampling frame, and describe the way the participants were randomised from the sampling frame.

Probability sampling techniques (using randomising processes cannot be used if there is no sampling frame - that is the complete list of elements in the population.

Remember: in the same study different sampling techniques could be used at different levels of the population, and for different objectives.

It is all right to use non-probability techniques for qualitative meth­ods. Strictly speaking probability techniques need to be used only to es­tablish prevalence questions and if you aim to generalise your findings.

Note also that in a research there are layers of sampling. Consider this example research question: What is the extent of the use of e-resources for academic purposes among university students in Kenya? In this case, there are different levels of population and corresponding sampling procedure:

|  |  |  |
| --- | --- | --- |
| **Population**  Level 1 | All universities in Kenya | What will be your sample size? What technique are you going to use to sample the universities? How are you going to handle private and public universities? |
| Population Level 2 | All faculties within the sampled universities | Sample some faculties |
| Population Level 3 | All departments within the sampled faculties | Sample some departments |
| Population Level 4 | Course units within the  sampled departments | Sample some course-units |
| Population Level 5 | Students within the sampled course units | Sample some students |

Table 19.2 offers some guidelines on how to match your sampling technique with your research design, which is also matched with your research objectives/questions.

# **9**

# **RELIABILITY AND VALIDITY IN RESEARCH**

## 9.1. What Is Validity and Reliability?

Validity is the confidence that a given finding shows what it purports to show. That is, it is close to reality. For example, if a research claims that there is a correlation between eating sausages and being prone to cancer, and if this claim is true to reality, then it is valid.

Reliability is the confidence that a given empirical finding can be reproduced. When a study is repeated under the same circumstances, with the same population, using the same methods, if it yields the Same results then the study is reliable.

We can speak of validity and reliability of the instruments as be­ing different from validity and reliability of the findings or conclu­sions. An instrument of measure is *reliable* if it produces the same results when repeated either with the same population or under sim­ilar conditions with another population. An instrument of measure Is validif it really measures what it purports to measure. Of course, A finding is as good as an instrument. However, the reliability and validity of the findings could also be contributed by factors other than instruments.

**9.2. Bias and Error in Research**

Bias and error in research threaten the validity and reliability of the findings. Bias or error can happen almost at any stage of research. Similarly, bias can happen on the part of the researcher or on the part of the participant.

Researcher bias. Although all researchers aim at objectivity, there is a great possibility that often unconsciously there is a great temptation to omit evidence unfavourable to the hypothesis and to argue more than what the data purports to show. Awareness and reflexivity is the key to avoid bias.

**Sampling bias,** occurs, as the term suggests, in the process of sampling particularly when convenience sampling techniques are used. The bias happens when "those selected are not typical or rep­resentative of the larger populations they have been chosen from," (Babbie, 2013, p.132) and yet the researcher intends to generalise the findings. It is important not to generalise the findings when it is not possible to do so.

**Habituation bias.** When items are worded in similar ways par­ticipants tend to give the similar answers to the questions. In general attention requires more energy, hence participants tend to work on autopilot. Reversed items in a questionnaire tend to reduce habituation bias.

**Hawthorne Effect** It occurs when participants are aware that they are being observed and hence they give their best shot to the experiment, and thus artificially altering the results of the research.

**Halo Effect.** It is a type of priming effect or a cognitive bias, whereby the effect in one area is influenced by the previous experi­ence in another. For instance, in a questionnaire of agree and disa­gree format, if the agrees come together in a sequence then partici­pants are likely to mark as agree what otherwise should be marked as disagree.

**Type I and Type II Error.** Type I Error occurs when a null hy­pothesis is rejected that in reality is not to be rejected. This is a type of over-sensitivity or false alarm. This might happen particularly when an instrument is too sharp, or a cut-off point or the effect size is too conservative. For example, when a measure for depression is too sharp and cut off point is too low it is likely to label participants as depressive who actually are not depressed.

Type II Error is the opposite of Type I Error. It occurs when a null hypothesis is not rejected that is actually not true to reality. This happens when the instrument, or effect size in statistics, is not sharp enough. For example, if score out of a measure of depression is kept too high to identify participants who are depressed then it might fail to detect participants who are actually depressed.

## **9.3. Types of Validity**

There are different types of validity. And different text books in research list different types of validity (Cohen, Manion, & Morrison, 2011; Fraenkel, Wallen, & Hyun, 2012). Let us focus here on the most common issues related to validity.

**External validity.** It refers to the strength of the generalisability: to what extent can the finding be generalised for the population, setting, and treatment variables.

**Internal validity.** It is the level of assurance that an experiment design closely follows the principle of cause and effect.

**Face validity.** Does the research appear in its face-value to be measuring what it is purporting to measure? If there is too much of face-validity the respondents are likely to fake their response to the instrument.

**Content validity.** In the operationalisation of the research, content validity is said to be strong when all the relevant variables are taken to consideration in the research design, and they are accordingly controlled.

**Construct validity.** It is the accuracy with which the theoretic concept/construct used in the research is matched up with the way the construct is operationalised in terms of measurement. In experiment designs involving a simulated situation, when theoretical constructs

of cause and effect are modelled in such a way that they represent the

real-world situation there is said to be construct validity.

**Criterion-related validity.** It is the extent to which a measure is related to a set of criteria. Depending on the criterion, there could be different types of criterion-related validity. Concurrent validity refers to a comparison between the measure in question and an outcome assessed at the same time. Predictive validity refers to the ability to predict something that we expect to occur.

## **9.4. Types of Reliability**

**Internal-consistency Reliability:** The consistency of results across items measuring the same variable. Ex. Say, we measure 'altruism' by means of 10 items on a Likert scale of 5. If someone has marked 4 in an item, they should have also marked 4 in a similar item; or 2 in a reversed item. This is measured in terms of Cronbach's Alpha (a). We will learn to use it in this course. So, come back to this shortly.

**Inter-rater reliability: (This is related to Validity as well): The** level of correspondence between two or more judges/raters who assess a given situation using the same tools. Ex. Personality Test of A - self-assessment, assessment by peers of A, and by parents. This is measured in terms of Cohen's Kappa (k), or Pearson's r. We will not learn to use it in this course.

Test-Retest Reliability: The consistency of scores when the same measure is repeated after a given time with the same population. This is measured by means of correlation test - Pearson's r. This will be a major test and we will learn to use it in correlation which you could apply it to scales as well.

**Split-Half Reliability:** This refers to the correspondence of scores between two equal halves of the items randomly split into half. This is measured by means of correlation test - Pearson's r.

## **9.5. Ensuring Reliability and Validity**

First of all, all the biases mentioned above need to be eliminated. Then a researcher should seriously consider how reliability and validity could be improved. The research should discuss the issue of reliability and validity whenever possible in the research report.

In quantitative studies, there are two ways you can ensure reliability and validity:

1. *Standardised measures.* Choose instruments/scales that have been used in previous research projects. Coming up with an instru­ment that is based on a certain construct, with robust psychometric properties is a herculean task often part of a PhD work. See Chapter 20 for more details. Therefore, it is better to choose a scale that has been published with psychometric properties and that has been re­ported with a population similar to that of yours. Make sure you match your conceptualisation of the construct with that of the scale. Report its psychometric properties.
2. ***Expert Consultation.*** Not every item in your instrument needs to come from a standardised scale. Sometimes you can simply op-erationalise a construct/variable using a few items. You could justify **the** presence of the items by means of literature review. Or you could Verify the validity of the scale by means of expert consultation. Re­quest two or three experts to give their opinion on the instrument before you gather data, based on your conceptualisation and operationalisation. This is likely to improve a different aspect of validity.

**In qualitative research,** the influence of the researcher's subjec­tivity is unavoidable. Hence, often reliability of the qualitative stud­ies is questionable. However, some authors argue that subjectivity of the researcher could be meaningfully used in analysis (Sciarra, 1998). There are also ways in which reliability and validity could be im­proved in qualitative studies (Merrick 1998; Yardley 2008):

1. ***Triangulation:*** It is a relationship created between two or more sources of data and a comparative analysis is carried out in such d way that the common features between the sources are reported **to** be the finding or conclusion. Thus, validity of the finding could be improved. Triangulation could be between qualitative data and quantitative data, or between two sources of qualitative data, say from Interviews and focus-group discussions; it could also be between dataand literature review (previously established conclusions).
2. ***Collaborative analysis:*** In order to reduce the subjectivity in the analysis of qualitative data, more than one person could carry out Analysison the same data set, compare notes, and report a commonly agreed upon set of themes as findings. Most of the Computer Assisted Qualitative Data Analysis Software (CAQDAS) such as NVIVO offer thispossibility. When the data that has been independently coded **|ty** two analysts is brought together in the software, the CAQDAS a kappa-value (K) to show the correspondence between the coding. If the kappa-value is above .7 (that is a 70% of similarity) then the correspondence is excellent. If it is below .4, then there is something drastically wrong with the coding criteria. If the kappa-value is between .4 and .7, then a dialogue could be held between the coders to see how the correspondence could be improved.
3. ***Transparency.*** Transparency in describing every step of data gathering and data analysis improves the reliability of the finding Therefore, researchers should never do anything that they cannot report, and report all that they have done. A research report that lacks details on the method and overlooks procedures and justification would lack reliability.
4. ***Reflexivity.*** As said before, some authors argue for the transparent integration of the researcher's subjectivity in the process of qualitative research. One way to carry this out is by means of reflexivity. The researchers could include a section in the conclusion where they attempt to answer two questions: what did I bring to this research as an individual - what preunderstanding, biases and prejudices that I could have come with into the study that would have caused a shadow on the data? What do I take from the study, how have my preunderstanding, bias and prejudices been changed by the data?

|  |
| --- |
| **Box 9.1.**  **Simple indications of a Scientific frame of** mind: |
| 1. Make a distinction between opinion of people (qualitative data) and facts (often quantitative data). If I want to find out how much rain we had in the last month, I would go to the meteorological department. They would provide some measured data. If I want to find out the ex­periences of commuters on a rainy day, then I would ask people.  2. Do not claim a causal relationship when in reality there is only a cor­relation. There may be a correlation between fatigue and malaria, but fatigue does not cause malaria. |

See: Chapter 21 for Testing internal reliability of instruments using SPSS

# **10**

# **RESEARCH ETHICS**

Carrying out a research involves a power-play. The researcher somehow exerts power over the participant in the research. Hence, the importance of regulating this process through cer­tain ethical principles to safeguard the wellbeing of the vulnerable person. I highlight seven principles.

## **10.1. Informed Consent**

Participants should know the nature of the research (not necessarily the hypothesis), the possible risks, their rights and privileges, how the data will be handled and reported. They should be able to giveconsent, after receiving this basic information.

Incase of children or vulnerable adults informed consent may be givenby their guardians.

## **10.2. Freedom to Withdraw**

The participation in the research should be free, not coaxed by sit-Millions or institutions. The participant has the freedom to withdraw at any stage of the study. Whenever there is a doubt if there was any compromise on the freedom, always the benefit of doubt is granted to the participant, since they are the vulnerable party.

## **10.3. No Deception**

Participants should not be deceived in any way. It is not ethical to collect data that they are not aware that is being collected. While **(in** In1 should be told, the researcher is not obliged to disclose to the participants more information than what is necessary, particularly when the information can prejudice the findings.

## **10.4. Protection from Physical & Psychological Harm**

No research is to be carried out in which there is a known risk to the participant or to the researcher. Everyone should be safeguarded against unknown risks. Prevent any form of distress for the partici­pants; protect the vulnerable and minority group of participants.

Some cases of data gathering might need a counsellor as a stand­by, particularly when participants might have to talk about issues related to trauma, and in other cases a debriefing might be needed at the end of the process.

## **10.5. Confidentiality & Anonymity**

Participants' identity is to be protected. Generally, we report tru1 research in summary form. However, when there are case-studios explicit permission is sought, and names are usually changed.

The researcher should distinguish between private information and public information (especially in the internet and media). Breaking into protected data for the sake of research is unethical. A rule of thumb with regard to data culled out from the internet is, if the data was available to the public even if it is something person.il then that data is to be considered not protected. If there was any disclaimer or copyright to the information, then that data is to be handled accordingly.

## **10.6. Minimum Influence on What Is Observed or Studied**

What is studied is to be respected. Leave what is studied as it is; unless it involves action research. Action research, by definition, presupposes change of the situation. This will have to be discussed in the research report.

Respect for cross-cultural sensibilities is important. Similarly, respect for gender-sensibilities, and religious sentiments of people are to be respected. Some methods raise their own ethical issues particularly those that involve participant observation. Transparency in the key. The researchers should not do anything that they would hesitate to report.

## **10.7. Academic** **Integrity**

Transparency about the method used in research is a way of also Improving the validity. Report what you did, and do only what is possible to report. It is unethical to manipulate data, and to report un it there is evidence when there is no data. Remember, Type I and Type II error.

Preserve data and make available when required by peers. Exhibit Commitment to the scientific enquiry at every stage of work.

Sample Consent Form

**- Include** Here the Name of the **Educational Institution Research Ethics Committee**

**RESEARCH CONSENT FORM FOR PARTICIPANTS**

Title of research project:

Brief outline of project, including its purpose and the activities for participants:

Name of researcher:

Position of researcher:

Contact address for researcher:

Contact of the Supervisor:

Address of the Educational Institution:

Signed by researcher:,…………………………………..

Date:……………………………………………………………………...

Statement to be signed by the participant:

I confirm that the organiser has explained fully the nature of the project and the range of activities which I will be asked to undertake. I confirm that I have had adequate opportunity to ask questions about this project.

I understand that my participation is voluntary and that I may withdraw at any time during the project, without having to give a reason. I am aware that this study will cause no known distress to me.

I consent to take part in this project.

Signature. …………………………………………………….

Date...................................................................................

# **11**

# **METHOD OF QUALITATIVE DATA COLLECTION -SOCIAL SURVEY**

## **11.1. What Is Survey?**

Survey, in general, is a method of collecting data in which people are asked to answer a number of questions (usually in the form of a questionnaire). An opinion poll is an example of a survey. The reliability of a survey's results depends on whether the sample of people from which the information has been collected is free from bias and sufficiently large.

## **11.2. Questionnaires**

Questionnaires include questions concerning different aspects of the subject of study. It is used in such cases where the subject of study is very wide, and direct observation is not possible. It is also used about such things, which cannot be known through direct observation such as the ideas, intentions and motives of the persons concerned. Sometime the questionnaires are delivered by hand and at other times they are delivered through posts; these days even by Email. Questionnaires may be sources of information only when the informers are well educated and prepared to cooperate with the researcher. Note that here we have talked about questionnaire as a method of data collection, in a later section, we will talk about questionnaire as an instrument - in that context we will look at the characteristics of qualitative questionnaire.

## **11.3. Schedule**

Schedules are a particular type of questionnaires. The main dif­ference between questionnaires and schedules is that, whereas in the former the informants themselves reply to the question, in schedules this is done by the researcher himself. He questions the informants and records the replies in the proper places specified in the sched­ules. The main advantage of a schedule is that it may be used even in the case of an uneducated informant. However, it can be used only in a limited field, as compared to the questionnaire method.

## **11.4. Interviews**

In an interview, the researcher meets people and discusses social issues with them. During the course of this discussion, s/he gathers facts. An interview is different from a schedule. A schedule includes some predetermined questions asked by the researcher in a definite order without change. But the interview has no such definite form or order of questions. The researcher may ask any question on the basis of his insight into the problem.

Here are some definitions:

"An interview is a directed conversation" (Lofland & Lofland, 1984).

"It is a one-to-one method of data collection that involves an interviewer and an interviewee discussing specific topics [often] in depth."

(Hennick, Hutter, & Bailey, 201), p.109).

*a) Types of Interviews*

**Structured interviews**. This is used in a positivist research where researchers are looking for 'facts'; Questions are followed in a specific order - each must be answered before moving on.

**Semi-Structured interviews.** This is the most common method (approx. 90%) of generating data for qualitative research is the semi-structured interview (Briggs, 1986). Here the interviewer has an interview guide with some main questions, however, as the interviewee answers, the interviewer spontaneously probes an idea and when exhausted, comes back to the prepared questions. In this way, the researcher can gain a detailed picture of a topic. It is more flexible than traditional methods such as structured interviews, questionnaires etc. Open-ended questions require elaboration of answers, hence not easy to write.

**Conversation.** It is a more flexible method than Semi-structured interviews. There are not really a prepared interview-guide with questions. However, the interviewer has a general topic in mind and keeps conversing with the interviewee on that topic rather spontane­ously without losing the focus on the topic of research. This is a very ideal technique when exploring topics that concern people in later years of life, people living in rural areas.

**In-depth semi-structured interview.** This is basically semi-struc­tured interview as described above. However, the probing questions are prepared ahead of time and form part of the research instrument. Still, the interviewer is free to ask other probing questions.

*b) How to get the best out of your Interviews*

**Location.** Make sure you are not likely to be interrupted; make sure that your participant is comfortable and is put at ease; not being watched by others!

**Ethical norms.** Introduce your theme calmly, without giving out your assumptions. Get informed consent from the participants.

**Capture the data.** Record your interview as far as possible, if not take field notes almost verbatim, or get someone to do this as you conduct the interview. If interviews cannot be recorded, you might want to rethink your topic or your participants. By the way, switch on the recorder before you begin your interview.

**Guide, not control, the interview.** Smith (1995) recommends memorizing questions so that participants are not put off by you referring to an interview schedule; A good interview should have short ques­tions and long answers; the interviewer seeks clarification if necessary. A good interviewer is sensitive to the participant's interests and can build on earlier comments demonstrating understanding. A good in­terviewer will be able to reflect afterwards on their interview style

## **11.5. Focus Group Discussion**

"A focus group discussion is an interactive discussion between six to eight pre-selected participants, led by a trained moderator and focusing on a specific set of issues" (Hennink, Hutter, & Bailey, 2011, p.136).

*a) Types of Focus Group Discussion*

Homogeneous Groups: the members resemble each other in cer­tain categories (Gender, interests, etc.).

Heterogeneous Groups: the members are different from each other in certain categories.

Pre-existing Groups & Ad hoc Groups: the members could be recruited for the purpose or not.

*b) Getting the best out of Focus Groups*

**Location.** Should be suitable for everyone to share; circular arrangement.

**Procedure.** Establish ground rules; moderate in such a way that the discussion is focused, spontaneous, open to disagreements; encourage all participants to contribute.

**How many.** How many should be in each focus group? Generally, between 6 and 10 people in each group. How many focus groups are necessary? Do as many focus groups as necessary until you are able to predict comments and are learning nothing new; Normally between 3 and 5 groups, sometimes as few as two, other times many more. Should the moderator be different from the researcher? Not necessarily.

**Data Collection.** Audio record data, and transcribe verbatim; Field notes, only when recording is not possible.

## **11.6. Delphi Method**

Delphi method is a series of focus group discussions with experts on a particular topic. The outcome of one session is fed-back to the participants during subsequent sessions, in such a way that after two or three sessions a consensus is reached among the experts on the experts topic. Here is a comprehensive definition:

The Delphi method is an iterative process used to collect and distil the judgments of experts using a series of questionnaires interspersed with feedback. The questionnaires are designed to focus on problems, opportunities, solutions, or forecasts. Each subsequent questionnaire in developed based on the results of the previous questionnaire. The process stops when the research question is answered: for example, when consensus is reached, theoretical saturation is achieved, or when sufficient information has been exchanged (Skulmoski, I hitman, & Krahn, 2007, p. 2).

# **12**

# **METHOD OF QUALITATIVE DATA COLLECTION -ETHNOGRAPHY**

## **12.1. What Is Ethnography?**

A set of data collection methods that are meantto capture the "social meanings and ordinary activities" of people in "naturally occurring settings" that are commonly referred to as "the field." The goal is to collect data in such a way that the researcher imposes a minimal amount of their own bias on the data.

## **12.2. Observation**

***a) What is Observation?***

Observation usually involves an intensive examination of a particular group, event, or social process. The researcher studies something that is happening or has happened without attempting to structure the conditions of observation. Most observational studies take place in the field.

Observation is a form of long unstructured interview, where the researcher interviews people informally, if need be, as **events** unfold before his eyes. But s/he learns not by asking questions but by what they observe.

The researcher does not attempt to influence what happens in any way but aims instead at an accurate description and analysis of what takes place. The analysis usually involves tracing cause-and-effect relationships, but some sociologists are content merely to give a precise account of their observations. These accounts may be use­ful to other sociologists.

***b)******Types of Observation***

Observation can be of three types:

**Non-participant Observation:** The researcher remains outsider to the event or the group. He does not participate in group life but observes as an external spectator.

**Participant Observation:** The observer lives in the group community as a member of it and participates in their life, he observes. Though this approach is very common in Anthropology, it is also used in Sociology.

**Controlled Observation (Experimental Method):** The greatest drawback of uncontrolled observation is that in it the observer ha§ no control over the factors or circumstances operating in a situation, and therefore cannot easily determine the influencing factors.

Therefore, they have recourse to controlled observation. Here is an example. To determine what influences workers' better productivity *(dependant variable),* different factors may be chosen to be *independent variables* (like a nap in the afternoon, common coffee break, recreational facility, incentives, music, etc.) and observe the fall or rise in their performance in correspondence to the presence or absence of the independent variables.

However, there are innumerable social situations where the control of circumstances is neither feasible nor desirable. For exampleno one can condone inducing drug- addiction in human beings for the sake of determining the quantity and frequency of drug taking leading to addiction.

***c)******How to collect data in observation?***

Ethnography basically involves field-work, that is why we have talked about observation. However, observation may also besupplemented with some in-depth interviews after the event.

Data from observation could be collected through:

1. Very detailed field notes - written as soon as possible; include also reflexive elements (what happened to you?)
2. Photographs;
3. Video-recording.

See: Chapter 20 for Quantitative Methods of Data Collection

# **13**

# **QUALITATIVE RESEARCH INSTRUMENTS**

There is a section on the research proposal, as well as the research report, in the method section where one is expected to describe the research instruments that was used in the study.

**Chapter 3: Method**

Research Design

Participants (Sampling proce­dure & size)

**Instruments**

Procedure

Data Analysis

Ethical Considerations

Research Instrument does not refer to hardware stuff that you might use for collecting data, such as laptop, tape-recorder. These should not be mentioned in this section.

Following points should be borne in mind in framing a research Instrument:

1. Research instrument should be appropriate to the method of data collection you are using. You cannot say you are using interview, and you talk of a questionnaire to collect data.
2. Research instrument should match your research questions/objectives. After framing your instrument have a second look at it, and ask yourself: will this instrument yield sufficient data so as to answer the research questions?

Recall the different methods used for qualitative data collection, and we shall match the instruments to the method and present some Samples.

|  |  |  |
| --- | --- | --- |
|  | Method of Data Collection | Research Instrument |
| 1. | Qualitative Questionnaire | Questionnaire (with open-ended questions) |
| 2. | Interview | Interview Guide |
| 3. | Focus Group Discussion | Focus Group Discussion Guide |
| 4. | Observation | Observation Guide (or) Observation Checklist |

## **13.1. Developing a Questionnaire for Qualitative Research**

The questionnaire will have the following structure. First few questions could include **demographic variables:** age, gender, educational background, etc. Include only variables that are relevant to your research. Name is not to be included since generally questionnaires are to be anonymous.

For a qualitative research your **questions have to be open-ended.** The answers to these questions could be filled by the participant or the researcher could fill in after the interview. The latter method is called schedule.

The following points could improve an open-ended questionnaire:

* A question that begs a yes/no answer is not an open-ended question. Example of a closed question: Do you go to church on Sundays? Example of an open-ended question: What do you normally do on Sundays?
* Similarly avoid questions that might beg a one-word answer. Example of a one-word answer question: When did you finish college? Such a question could be in the section on demographic questions.
* Do not ask leading questions, those are questions that suggest the answer. Example of a leading question: Did you feel happy when you finished college? Example of an open-ended question: Could you describe how you felt when you finished college?
* The questions should not require long answers. Example of a bad question: How was your childhood? Better question: Could you mention one memorable event from your school life (between Class 1 and Class 5)?
* The level of vocabulary and concepts implied in the questions need to be appropriate to the age and level of education of your participants.
* Balance between action, feeling, and thinking questions. What do you do? What do you feel about...? What are your thoughts on...?
* In the actual questionnaire leave sufficient space to write the answers.
* The number of questions on an open-ended questionnaire will depend on your research question(s). However, it is good to remember that open-ended questions are demanding on the participants and hence are to be kept to the minimum.

## **13.2. Interview Guide**

If you are using a semi-structured interview, it is enough to have fiveto seven questions around which you conduct the interview. This could last for about 20 to 30 minutes of interview. Of course, the questions need to be open-ended as described above.

If you are using an in-depth interview then it is important to foresee the probing questions as well. Probing questions are more pointed and if the participant does not touch on these points then the Interviewer will get an answer from them. Here is an example. The data of demographic variables could be collected in a separate sheet. Here is an example of an interview guide. In this case, let us have the following as the research question: What is the experience of matatu-Marrs in Nairobi on rainy days?

|  |  |  |
| --- | --- | --- |
| **Interview Guide** | | |
|  | General Questions | **Probing Questions** |
| 1. | How do you travel to and from work/school? | Do you use matatus? What route do you use? (If the participant does not use matatu, then they will be excluded from the inter­view.) |
| 2 | What happens when it rains? What is your experience? | Is there a price hike?  Is there extra-traffic jam?  What do you do when you get late?  What happens if you don’t have the fare? |
| 3 | Could you describe the last time you experienced something like this | Was there price hike?  Was there extra-traffic jam? |
| 4 | How do you handle these hazards? | Do you refuse to travel?  Are you prepared for these eventualities? |
| 5 | What could be some of the solutions to this? | Is it better to have a government run system?  Is it better to have bigger buses? |

## **13.3. Focus Group Discussion Guide**

Focus Group Discussion Guide is very similar to the interview guide. Hence it will have the same structure. However, only the title needs to be appropriate.

## **13.4.** **Observation Guide or Checklist**

Depending on your research question, you will frame an Observation Guide - making sure to note elements that are important for you. The Guide will be slightly different from the Checklist. The checklist might have items listed that you are looking for in the context that you are observing, whereas the Guide will be more open. Here is an example of an Observation Guide.

**A Sample Observation Guide**

|  |  |  |
| --- | --- | --- |
| Observation guide - part 1 Worship a window into Pentecostal theology and worldview | | |
| Church | Date & time | |
| Estimated number of congregants | Start: Announcements: Sermon:  End: |  |
| Estimated demographic profile in percentage | 0-12  13-20  20-35  35-55  55 + | African  Asian  Western |
|  |  | Male  Female |
| Scenography/decorations |  | |
| Host of service: gender & age, style |  | |
| Worship leader: gender & age, style |  | |
| Singers: number, gender & age, style |  | |
| Musicians: gender & age, style, Instruments played |  |  |
| Estimated number of songs sung | English:  Kiswahili:  Up-beat:  Soft: | Before sermon:  After sermon: |
| Typical expressions / catchwords |  |  |
| Bible texts read | Before sermon:  In sermon:  After sermon: | |
| Preacher: gender & age, style |  | |
| Theme of sermon |  | |
| Number and type of altarcalls made |  | |

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Observation guide -part 2  Worship a window into Pentecostal theology and worldview | | | | Church  Date & time: |
| When? | Who? | What? |  | How? |
|  |  | | | |

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# **14**

# **QUALITATIVE DATA ANALYSIS**

Remember, in qualitative method we collect textual data. If the verbal data is in the form of recorded interviews or discus­sions, then they are to be converted into textual data. Now, how do we analyse the data? There are at least four methods of quali­tative data analysis:

a. Thematic Analysis

b. Content Analysis

c. Discourse Analysis

d. Narrative Analysis

In this section, we talk about the first two methods of data analysis.

## **14.1. Thematic Analysis**

The qualitative method of thematic analysis (Braun & Clarke, 2006; Fereday & Muir-Cochrane, 2006), aims at providing "descriptive accounts of the phenomenon under investigation." Counting of "occurrences, volumes, or the size of associations between entities" was kept to the minimum (Smith, 2008, P.1). "Thematic analysis is a method of identifying, analysing and reporting patterns (themes) within data" (Braun & Clarke, 2006, p.79). Often this approach goes beyond identifying and analysing to interpreting various aspects of the research topic (Boyatzis, 1998). In this way, thematic analysis is very flexible. Though akin to qualitative content analysis, it is distinct from other methods of qualitative research (Hsieh & Shannon, 2005; Eto & Kyngas, 2008).

There are two types of thematic data analysis.

*a. Deductive-Inductive Thematic Analysis*

|  |  |
| --- | --- |
| Table 14.1:  Deductive-Inductive Thematic Analysis | |
| **Steps**  Step1 | **Description**  **Development of coding template:**   * Literature Review & clarification of the theoretical   framework   * Dialogue with the data set * Ensure reliability (collaborative work) |
| Step2 | **Initial Coding applying the template:**   * Identify initial themes |
| Step3 | **Finalise themes:**   * Connect the codes and identify themes |
| Step4 | **Discussion:**   * Corroborating or challenging the theory: how can the theory be improved in the light of the emerging themes from the data? |

Deduction is a procedure in knowledge that involves applying an established theory to understand a particular phenomenon. On the other hand, induction is a process of picking up the patterns in particular phenomena (or cases) and generating a theory.

If you had a theoretical framework for your research, then the ap­proach method to use in your qualitative data analysis is deductive-inductive approach. That is, as described in Table 14.1, you begin by developing a coding template on the basis of your theory. Based on the theoretical framework, it is possible to create coding template with the list of expressions and phrases that you are going to look for in the textual data, that would add up to certain themes.

Once you have developed the coding template you begin to look meticulously at your data - line by line. You mark out the phrases and sentences that correspond to the codes in your template.

In step-3, try to summarise the coded data into some specific of themes, say from three to seven themes. Then you will report these themes in the results section of the research report. Use the theme as your sub-title and then provide evidence from the data in support the theme: strike a balance between summarising, paraphrasing and quoting verbatim the texts from the data.

Step-4 would be demonstrated in the Discussion section of your research report. Evaluate how the emerging themes correspond or differ from the original theoretical framework. Discuss how the the­ory can be improved in the light of the emerging themes from the (Int.).

*b. Pure Inductive Thematic Analysis (Grounded Theory Approach)*

|  |  |
| --- | --- |
| Table 14.2:  Pure Inductive Thematic Analysis  Grounded Theory Approach  **Steps Description** | |
| Step 1 | **Open coding/initial coding:**   * Read the data line by line - pick up phrases, expressions that have some meaning; use original words as nodes; link highlighted text (data unit) to the nodes. |
| Step 2 | **Axial coding:**   * Tie up the related nodes into codes in an attempt to reduce the number of nodes. |
| Step 3 | **Thematic identification (Selective Coding):**   * Connect the codes and identify three or four themes in the data set. |

What is "Grounded Theory Approach"? Recall what we have already said in the section on epistemological framework. Grounded theory methods consist of systematic yet flexible guidelines for collecting and analysing qualitative data to construct theories 'grounded' in the data themselves. It goes beyond description to generation of "explanatory theoretical frameworks". It aims .il constructing middle-range theories (Merton).

This assumes that your research did not begin with a theoretic.il framework. So, you are going to generate a theory or a model from your data set.

The method of thematic analysis here involves very similar steps as described above. However, since you do not have a theoretical framework, you do not have a coding template as well. You begin with the data (see Table 14.2), and you proceed with three steps until you arrive at a set of themes.

What is the difference between initial coding and axial coding? Initial coding is an open coding: you go over your text line by line and identify phrases and sentences or blocks of sentences that see to contribute to your research question.

Axial coding is a second pass through the data. In axial coding, you focus on the initial coded themes more than on the data, which is focused on in open coding, and you begin to tie up the codes. Additional codes or new ideas may emerge during this pass, and the researcher notes them; but your primary task at this stage is to review and examine initial codes. You form cluster of coded sub themes (Neuman, 2003, pp.322-323).

Finally, you identify three to seven themes from the axial sub themes and report them in the results section. Narrate the themes with your own words and verbatim quotes from the participants.

## **14.2. Content Analysis**

Content analysis is a method used to determine the presence of certain words or concepts within texts or sets of texts. Researchers quantify and analyse the presence, meanings and relationships of such words and concepts, then make inferences about the messages within the texts, the writer(s), the audience, and even the culture anil time of which these are a part.

To conduct a content analysis on any such text, the text is coded, or broken down, into manageable categories on a variety of levels — word, word sense, phrase, sentence, or theme — and then examined Using one of content analysis' basic methods.

There are two general categories of content analysis: conceptual analysis and relational analysis:

* 1. **Conceptual analysis** can be thought of as establishing the existence and frequency of concepts - most often represented by words or phras­es - in a text. For instance, say you think there is a repeated concept of hunger in an interview. With conceptual analysis, you can determine how many times words such as "hunger," "hungry," "famished," or "starving" appear in the data set.
  2. **Relational analysis** goes one step further by examining the relation­ships among concepts in a text. Returning to the "hunger" example, with relational analysis, you could identify what other words or phrases "hunger" or "famished" appear next to and then determine what dif­ferent meanings emerge as a result of these groupings (Writing Studio, 2015).

# **15**

# **CHECKLIST FOR QUALITATIVE RESEARCH REPORT**

How would you know, what you are writing is of internation.il quality? Just check out against what highly-ranked academic journals demand. Though journals might have differences in their directives, at least you know you are using one standard method. The following points are adapted from those prescribed by the journal, *The Qualitative Report* (Chenail, Cooper, Patron, & TQR Associates, 2011). The journal assigns 2 marks for each of the following sections. Failure to get at least 13 out 20 marks will entail the rejection of the article. If qualified then further review is continued.

*1. Opening Elements:*

*A.* Title is 12 words or less; B. Title indicates most important ele­ments of report, i.e., population, focus, methodology, and findings; C. Abstract is 200 words or less; D. Abstract reflects organisational structure of paper (i.e., presents problem/focus of study, research questions, participants, methodology, findings, and key points from discussion of findings.

2. *Introductory Section:*

A. Statement of research problem; B. Statement of research objectives; C. Indication of why local study has global importance; D. Statement of rationale for study; F. Indication of benefit of research (answers the "so what?" question).

3. *Literature Review:*

A. Offers synopsis of current literature on topic in terms of con­tent and research processes used; B. Demonstrates gap in literature regarding content and/or research methods; C. Explains how study Will fill gap; D. Provides reflections on literature rather than a series of reports on sources; E. Includes literature that helps define phe­nomenon; F. Shows what is known and not known about phenom­enon; F. Explains how literature led to research questions.

4, Role *of Researcher:*

1. Describes researcher's context, interest in topic; B. Makes clear Who did what throughout study procedures; C. Describes how ethical Unties were considered and addressed; D. Describes how researcher bins was addressed; E. Discusses steps taken to ensure rigour and trustworthiness of findings.

5, *Methods Section:*

1. Explains how research design fits with research objectives; B. explains what type of qualitative inquiry was used; C. Provides step **by** step description of procedures, with corresponding headings; D. Describes sampling strategy and participant recruitment; E. Explains steps of data generation, collection, and data analysis, as well as ra­tionale for each design choice; F. Cites literature used to guide proce­dures; G. Tells reader what constitutes data; H. Provides examples to Illustrate steps of data analysis.

6, *Results Section:*

1. Tells reader how results will be organised; B. Tells reader how results are derived from analysis; C. Findings produced consistent with methodology indicated; D. Presents exemplary evidence to support findings; E. Explains how each excerpt supports assertions/ findings; F. Each excerpt illustrates unique qualitative distinction; G. Presents demographic information of participants in composite form.

*7, Discussion Section:*

1. Does not include discussion in results section; B. Does not include findings in discussion section; C. Does not repeat information already presented in paper; D. Discusses how findings compare/contrast with what was known and/or not known in the literature; E. Discusses limitations of study; F. Discusses position on generalisability of results; G. Discusses implications of findings, H. Indicates area of future research; I. Ends paper with discussion section.

*8. References:*

A. Citations in text correspond to sources in reference list; B. Ref­erences are in APA style.

9. *Writing:*

A. Effective use of headings; B. Fluent English language; C, Clear, precise writing; D. Correct grammar and usage; E. Avoids bias in language; F. Strong mechanics of style; G. Active voice; H. Contextualised language reflects interpretive stance.

10. *Coherence:*

A. Between title and abstract; B. Between abstract and body of pa­per; C. Between focus of study and literature reviewed; D. Between research questions and methodology; E. Between methodology pre­sented and methods employed; F. Between methodology and find­ings; G. Between findings and research questions; H. Between findings and stated implications

# **16**

# **WHAT IS QUANTITATIVE METHOD OF RESEARCH?**

Quantitative method is quite different from qualitative method of research even though both of them rely on empirical data - data gathered by means of sense experience.

Quantitative method deals with numbers. Everything - experience, perception of participants, indeed reality itself - is reduced to measur­able units in numbers. Numbers have a great advantage of being objective. If I say there are 10 bottles on the table, it cannot be according to you or according to me - this would be subjective perception. It is limply 10, that is objective data. Moreover, quantitative method uses calculation in statistics to establish what is called statistical significance. To do this we need great number of participants - large sample size.

Quantitative methods are made easy by means of softwares such as SPSS. So, you do not need to be frightened of numbers. You need to understand the logic of the statistical tests and to interpret the results accordingly. That is what the following chapters are about. Before wo go ahead, here are some general points for consideration.

## **16.1. You Can Do It**

Quantitative method is not a fierce dragon. It can easily be be­friended. It is as easy as knowing which is a greater number between: (a) .0456 and (b) .12! Surely, there are many advantages of reducing reality - including people's opinions - to numbers. For one, numbers are objective - the subjectivity of the researcher is minimised. With numbers, we can establish cause and effect relationship between vari­ables. Thirdly, statistical analysis using quantitative data is helpful in generalisation (what is true of the sample being true of the population) by establishing statistical significance. Be calm, you can do it.

## **16.2. Conceptualise the Constructs (Variables)**

In quantitative research, we measure variables and examine re­lationship between them. Variables are nothing but constructs that are measurable. Constructs need to be conceptualised. Here is a re­search question: is there a correlation between individuals' purpose in life and happiness? Here, "Purpose in Life" and "Happiness" are variables that need to be measured. Now, the measuring of the vari­ables depends on how you conceptualise them. Thatis why you need a theoretical framework. The theory may inform how you could con­ceptualise the variables (and eventually measuring them) and how you envisage the relationship between them (conceptual framework).

## **16.3. Operationalise the Variables**

Once you have conceptualised the variables, you need to decide: how are you going to measure the variables? This is operationalisation. Some variables are measured by means of *a single item:* are you a happy person (y/n)? What this question is likely to yield is one's perceived happiness. However, happiness is an abstract concept -a construct; it might need a multiple-items scale to measure. The average or a total of the scores from the items can generate a score of happiness for each participant and a group. Once you have such scores, you can compare one group against another; you can test the association between happiness and another variable. On the other hand, happiness can be measured as a continuum - in degree of hap­piness. In this case, you need have to score your items in a Likert Scale (say, in a 5-point scale). You see, things are getting interesting here - and a bit complex. So, would you like to come up with your own questionnaire or you adopt (not adapt) a scale that has good psychometric properties - with high level of reliability and valid­ity? In social sciences, rarely do researchers come up with their own questionnaire, because reliability and validity are difficult to estab­lish in fresh scales.

## **16.4. Different Types of Quantitative Analysis**

Reporting a quantitative analysis does not simply mean present-Ing tables and graphs. They are useful, but quantitative study goes beyond that - and surprisingly, could be lacking in graphs! We have ' two types of quantitative analysis:

*Descriptive Statistics:*

Descriptive statistics is a summary of the data-set of the sample. Often descriptive statistics is reported in frequency (e.g. how many of the participants are male?) and percentages. When mean scores are presented, the Standard Deviation (SD) is also reported in order to show how wide is the sample data distributed in comparison to a normal distribution.

*Inferential Statistics:*

As said above, inferential statistics consists in finding out if what is true of the sample data-set could be true of the population by estab­lishing statistical significance after calculating the standard error (how much is the present sample deviant from the assumed population).

Hypothesis testing is possible only with inferential statistics. For this reason, if there is no inferential statistics involved in the analysis, it is meaningless to have a set of hypotheses.

*In general:* the value of your finding will depend on the higher level of the statistic (Eg. Pearson's r; F-ratio); higher level of signifi­cance (p value - lower probability level), and larger sample size.

Box16.1.

As you launch on a quantitative study:

1. Be clear about the variables of the study;

2. Have an idea on how you will measure your variables;

3. Foresee how you are going to associate the variables in terms of analysis;

4. Make a clear distinction in your mind on how you will establish facts, and not just summarise opinions.

These aspects should exist in your mind at the same time, then your study is likely to be more consistent.

# **17**

# **CONCEPTUALISATION OF QUANTITATIVE RESEARCH**

## **17.1. Topic & Research Questions**

A research begins with a topic or a research question. This is the question that you are trying to answer when you do re­search on a topic or write a research report. It should be <is specific as possible. In some cases, you may make two or more re­search questions to cover a complex topic.

In a quantitative study the variables should be as clear as possible in the research question. For a novice in quantitative study, it is better to have only two variables very clearly in one research question. And these two variables should be easily measurable. Often the question would centre on the association between two variables the association could be correlation or an influence, or a comparison.

For instance, consider this research question: Is there an association between gender and level of happiness? The same question could be rephrased as: Is there a difference between men and women on their happiness levels? Or, as: Does gender have an impact on people's happiness level?

## **17.2. Conceptualisation of Constructs**

Once you have a broad understanding of the topic, or you have your research question(s) stated, you need to conceptualise your study. As your conceptualisation progresses your research questions will get more and more refined.

Conceptualisation of the research begins with the conceptualisa­tion of the constructs or variables. Constructs refer to the variables of your study. Variables are constructs, whose association you are examining in relation to the phenomenon under investigation. How have other authors defined these variables; how are they going to be Used in the present study? Justify your choices.

In a quantitative study, when you conceptualise your constructs you are actually breaking down that variable to measurable dimen­sions. Hence, remember, this section will be directly related to the section in Method chapter where you will describe the Instruments of Measure in the study. In the above example of gender and happi­ness: gender is quite straightforward to measure, various happiness needs conceptualising. And the way you are conceptualising happi­ness is the way you will measure it.

Or for example, say, you are studying the correlation between Women Empowerment and Divorce Rates in a given population. Measuring divorce rates may be relatively easy. However, measuring Women Empowerment will entail breaking it down to measurable dimensions such as financial autonomy, education level, participation in decision making, etc. The instrument for measuring Women Empowerment will include items that measure these dimensions.

The conceptualisation of construct can often be inspired by the theoretical framework. Therefore, theory is important too. And the theory should govern the whole research process.

## **17.3. Operational Definition**

It is often in good order to include a list of operational definition towards the end of the first or second chapter, though this is not Compulsory especially in a qualitative study. Operation definition pays particular attention to the variables of the study and how they are measured. Look at this example from Babbie (2013, p.71): "The Operational definition of 'earning an A in this course' might be I 'correctly answering at least 90 percent of the final exam questions'."

Operational definitions are not just culled out of a dictionary. They are not a substitute for conceptualising your variables or constructs. Operational definitions are useful for the sake of precise ob­servation, measurement, and communication.

## **17.4. Theoretical Framework**

Every research tests an existing theory or generates a theory, Theory can be grand-theories such as conflict theory in sociology or psychoanalysis in psychology. You could also have mid-range theories such as rational-choice theory or objects-relations theory.

The theoretical framework of the study is a structure that can hold or support a theory of a research work. It presents the theory which is hypothesized to explain why (theory) the problem under study exists, or how (model) the problem expresses itself.

Logically, in studies involving qualitative methods in general anil exploratory studies in particular, theoretical framework may not be needed. Most qualitative studies follow the approach of Grounded Theory approach.

**See: Section 14.1 for Grounded Theory Approach**

In quantitative studies, the chosen theoretical framework informs the rest of the study: including how the variables are conceptualised how they are measured (operationalised) and how they are analysed It is advised that you have only one major theory. If more than one theory is chosen, then it is important that they are somehow related, and their choice is justified.

Thus, the theoretical framework is but a theory that serves as a basis for conducting research. It is the platform on which you stand to examine the phenomenon under study. It informs the rest of the research project. Theoretical framework particularly leads to concep­tual framework.

## **17.5. Conceptual Framework**

A conceptual framework is an image or symbolic representation of an abstract idea. Chinn and Kramer (1999) define a conceptual framework as a "complex mental formulation of experience". While the theoretical framework is the theory on which the study is based, tin- conceptual framework is the operationalisation of the theory.

In simple works if you look at the relationships or the interaction pi ween the variables of the present study from the perspective of (In\* theory above, how do they associate with each other?

Visually represent the hypothesised relationship between the Variables. Describe the arrows and the envisaged relationship. represented in the diagram. This is conceptual framework

Mediating

Variable

Mediating Variable

Independent Variable

Independent Variable

*Fig 17.1. Diff. Variables in a Conceptual*

There are different ways of relating the different type of variables an illustrated in Figure 17.1:

* 1. **Independent** variable is an antecedent construct that is assumed to precede the dependent variable. In an experiment design it is manipu­lated to observe its corresponding effect on the dependent variable(s);
  2. **Dependent variable** is the consequent construct that is assumed to be the outcome of the independent variable.
  3. Often in reality, there are too many other factors (variables) influenc­ing a phenomenon. We call them **intervening variables** - which are referred to using various terminologies, depending on their envisaged role in the phenomenon.
  4. Mediating **variables** stand between the independent and dependent variables, and they mediate the effects of the independent variable on the dependent variable (Creswell, 2008, p.50). These could also he referred to as extraneous variables.
  5. **A moderating variable** is one that influences the strength of a relation­ship between two other variables, and a mediator variable is one that explains the relationship between the two other variables. These could be referred to as confounding variables.
  6. To establish that it is indeed the independent variable that is the cause of de­pendent variable, confounding/Extraneous variables should be controlled-example: gender and age (Haslam & MacGarthy, 1998, pp.38-46).
  7. **Extraneous Variables** are those that the researcher acknowledges and notices in the study, as influencing the relationship of the main vari­ables. However, they are not the main focus of the study.

When you are laying out all these possible variables in a drawing, you are beginning to conceptualise your study. And as you do this you are trying to break-down the constructions to its dimensions in order to measure them. And you are also working out the possible relationship between them.

Figure 17.2 applies the conceptual framework to a specific example. Notice the difference of arrows to indicate different types of relationships. It is conceptualised in the present study that the relationship between Number of Hours of Study and Outcome in an Examination is improved by the Method of Study (Mediating Variable), on the other hand, the effect of Method of Study on the Outcome is moderated by Sleeping Pattern.

Sleeping pattern

Method of Study

Outcome in an Examination

Number of Hours of Study

*Fig 17.2. Conceptual Framework*

## **17.6. Hypotheses**

A hypothesis is a statement that can be proved or disproved. A research question can be made into a hypothesis by changing it into ft statement.

Some authors suggest that the hypotheses be listed at this point,

for the following reasons: (a) conceptual framework is hypothetical, if Well illustrated, the arrows will provide the hypothesised associations between variables, which are nothing but the hypotheses; (b) logically, hypotheses should flow from what we know and from the theoretical framework - both are in the literature review; (c) soon after the list of hypothesis, it is logical to have the method chapter, because the method will tell the reader how the hypotheses are going to be tested.

It is not meaningful to have a hypothesis if you are not going to testit by meaning of inferential statistics. We will see later what this is.

**What is a null hypothesis?** A null hypothesis (abbreviated H0) is hypothesis to be disproved (nullified). The following points are to be borne in mind while dealing with null-hypothesis:

1. A hypothesis is about the sample, whereas null hypothesis is about the population; that is, the latter allows for greater generalisability;
2. Null hypothesis specifies that there is no relationship or difference between populations;
3. The data analysis is carried out in such a way as to verify if the null hypothesis is rejected by the data; rejection of the null hypothesis "provides a stronger test of logic" (Best & Kahn, 2006, p.408);
4. It is assumed that the data is drawn from two normal populations (where data is normally distributed);
5. To ensure this, random sampling should have been employed;
6. Understandably, inferential statistics should be used to test the null-hypothesis.
7. Null hypotheses are used in the sciences. In the scientific method, a null hypothesis is formulated, and then a scientific investigation is conducted to try to disprove the null hypothesis. If it can be disproved, another null hypothesis is constructed and the process is repeated.

If all these seems too complex for you, you better not have a null hypothesis in your study. All studies do not have to work with null hypothesis. After all, all studies do not have to work with hypothesis at all, particularly when it is exploratory.

# **18**

# **OPERATIONALISATION: QUANTITATIVE RESEARCH DESIGN**

Once you have worked out your conceptualisation of the study, you can now begin to operationalise it by asking the following questions:

What research design best suits the research question?

What is the population/participants of your study? Who will be your sample? How will you sample them and recruit them? What will be your sample size?

How will you collect data from your participants? How am I going to measure the variables?

What instruments of measure or scales will you use to measure your variables?

How will you analyse the data? Which analysis will best suit your research question or research objective?

When you answer the above questions, you are operationalising your research. You are making it concrete.

In this section we focus on the first question above. Research De­sign refers to the overall framework that forms the scope of your study. We focus here on quantitative research designs.

## **18.1. Survey Research Design**

Survey research provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. It includes cross-sectional and longitudinal studies using questionnaires or structured interviews for data collection, with the intent of generalising from a sample to a population (Babbie, 1990). It involves large samples of data.

Often Survey is useful to answer the following type of quantitative research objectives:

* 1. To establish the extent of a problem (prevalence question): what is the extent of problem A among Population 1?
  2. To examine the association between two variables (also Correlation): Is there an association between Variable A and Variable B among Population 1?
  3. To compare two groups

**Schedule Method of Data Collection.** When the informants are largely uneducated, data cannot be collected by self-administered questionnaires. So, schedule method is used. Here the research assis­tants (RA) appointed by the investigator directly meet the informants with the questionnaire. They ask the questions to the informants and record their answers in the questionnaire. The reliability depends on the sincerity and efficiency of the RA.

This method is relatively more costly and time-consuming than the mailed questionnaire method. Often, what is mistakenly referred to as interview that uses questionnaires, is actually a schedule meth­od. Not to be confused with Data Collection Schedule (which might refer to a timetable).

## **18.2. Experimental Design**

Experiments "attempt systematically to manipulate theoretically relevant variables and to examine the effect of these manipulations on outcome variables" (Haslam & McGarty, 2014). Experiments usually involve active intervention on the part of the researcher. They also in­volve randomisation of selected participants into groups (intervention group(s) and control group). Independent variable is manipulated to observe its corresponding effect on the dependent variable(s).

It is also important to take note of mediating variables and moderating variables. Confounding/Extraneous variables should be controlled, for example: gender and age. This is achieved by matching the characteristics of the control group and experiment group.

In brief, experimental design involves the following: (a) at least two groups that are compared. One of the groups is considered as a control group; (b) the participants are randomised into the group; (c) the independent variable is manipulated/adjusted.

## **18.3. Quasi-Experimental Design**

"Quasi-experiments are identical to experiments, apart from one major difference: participants are not randomly assigned to conditions on one or more variables." No active intervention — on the part of the researcher. They involve grouping after measurement (Haslam & McGarty, 2014).

## **18.4. Correlational and Comparison of Means Studies**

**Correlational study:** It studies the variance in association between two variables. Here is a research question: As help from charities increase does dependency among recipients increase?

**Comparison of Means:** It studies the significance of the variance in one or two variables between two or more groups. Here is a research question: Do Tangaza Students perform better in social studies than CUEA students?

# **19**

# **PARTICIPANTS: DETERMINING THE SAMPLE SIZE**

Both probability and non-probability sampling are used in quantitative studies. More often probability sampling is pre­ferred under conditions below (6.1). Note also that different techniques could be used at various levels of sampling involved at different layers of population.

Recall some of the methods of sampling from Chapter 7 above.

## **19.1. Role of Probability Sampling in Quantitative Studies**

You need to be meticulous about probability sampling only in the following situations:

* 1. Your research design is a survey, and your research objective intends to establish the extent of a problem/opinion among a particular population; in other words, you are answering a prevalence question.
  2. You have a sampling frame (the list of elements in the population).

## **19.2. Determining Sample Size**

You need to be meticulous about the determination of sample size only in the following situations:

1. Your research design is a survey, and your research objective intends to establish the extent of a problem/opinion among a particular population; in other words, you are answering a prevalence question.
2. You have an estimated population size.

*How to determine the sample size?*

There are many formulas, such as the one from Fisher and colleagues (1943). More recently the research division of the American National Education Association (1960) has published a formula. I shall recommend the formula, also because there is a table created by two other authors that make things easy. I give the formula below and the table. If you use this formula and the table, give citation to the original authors (Krejcie & Morgan, 1970). The formula is stated thus:

*s = X* 2NP (1- P) - *d2 (N* -1) + X 2P (1- P).

Where,

*S=* required sample size.

X2 = the table value of chi-square for 1 degree of freedom at the desired

confidence level (3.841).

N = the population size.

P = the proportion of population that is assumed to have the

problem under study

(assumed to be .50 since this would provide the maximum sample

size).

d = the degree of accuracy expressed as a proportion, or

significance level (.05).

Table 19.1 works out the above formula according to population size. When you use this formula in your study cite: Krejcie and Morgan, 1970.

Table 19.2 offers a guideline on how to select your sampling [technique according to your research question. What this table highlights is that the choices you make in terms of the research design, sampling technique, and even analysis needs to be coherent and [justified according to your research objective or research question. There are no arbitrary choices in research method.

**Table 19.1.**

Determining Sample Size from a Given Population

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *N* | S | *N* | S | *N* | S |
| 10 | 10 | 220 | 140 | 1200 | 291 |
| 15 | 14 | 230 | 144 | 1300 | 297 |
| 20 | 19 | 240 | 148 | 1400 | 302 |
| 25 | 24 | 250 | 152 | 1500 | 306 |
| 30 | 28 | 260 | 155 | 1600 | 310 |
| 35 | 32 | 270 | 159 | 1700 | 313 |
| 40 | 36 | 280 | 162 | 1800 | 317 |
| 45 | 40 | 290 | 165 | 1900 | 320 |
| 50 | 44 | 300 | 169 | 2000 | 322 |
| 55 | 48 | 320 | 175 | 2200 | 327 |
| 60 | 52 | 340 | 181 | 2400 | 331 |
| 65 | 56 | 360 | 186 | 2600 | 335 |
| 70 | 59 | 380 | 191 | 2800 | 338 |
| 75 | 63 | 400 | 196 | 3000 | 341 |
| 80 | 66 | 420 | 201 | 3500 | 346 |
| 85 | 70 | 440 | 205 | 4000 | 351 |
| 90 | 73 | 460 | 210 | 4500 | 354 |
| 95 | 76 | 480 | 214 | 5000 | 357 |
| 100 | 80 | 500 | 217 | 6000 | 361 |
| 110 | 86 | 550 | 226 | 7000 | 364 |
| 120 | 92 | 600 | 234 | 8000 | 367 |
| 130 | 97 | 650 | 242 | 9000 | 368 |
| 140 | 103 | 700 | 248 | 10000 | 370 |
| 150 | 108 | 750 | 254 | 15000 | 375 |
| 160 | 113 | 800 | 260 | 20000 | 377 |
| 170 | 118 | 850 | 265 | 30000 | 379 |
| 180 | 123 | 900 | 269 | 40000 | 380 |
| 190 | 127 | 950 | 274 | 50000 | 381 |
| 200 | 132 | 1000 | 278 | 75000 | 382 |
| 210 | 136 | 1100 | 285 | 1000000 | 384 |

*Note: N is population size;*

*S is sample size.*

**Table 19.2:**

**How to match your sampling technique with your research question**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type of Re­search Ques­tion/Design | Research Design | Research Ques­tion | Proposed Sampling Technique | Remarks |
| 1. Prevalence Question | Quantitative Survey design | What is the extent of the problem? | Use probability sam­pling technique, and a formula to deter­mine sample size. | Generalisation is envisaged using de­scriptive statistics! Objective: to establish the prevalence of .... |
| 2. Correlational Question | Quantitative | Is there a correla­tion (an association in the variance) between Variable A and Variable B? | Use probability or non-probability sampling technique; of course, probability sampling is better. | Objective:  to test the associa­tion between... to test if there is a significant associa­tion between... |
| 3. Comparative Question | Quantita­tive; quasi-experimental designs. | Is there a significant difference between Group 1 and Group 2 of the participants in their score on Variable A? |  | Objective:  to verify if there is a difference be­tween... |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 4a. | Exploratory Question | Quantitative | What is happening within the phenom­enon - can it be quantified? | Non-probability sam­pling techniques will suffice | Objective:  to explore the nature of the problem... |
| 4b. | Exploratory Question | Qualitative: focusing on experience and perception | What is the experi­ence of a particular population as re­gards the phenom­enon?  What is the percep­tion of a particular population as re­gards the phenom­enon? | Non-probability sam­pling techniques will suffice. | **Objective:**  to explore the experiences of the population on this problem... to explore the perceptions of the population on this problem... |
| 5 | Causal Ques­tion (Explanatory) | Quantitative -highly positiv-ist approach; experimen­tal design: randomised controlled trial. | Is Variable A the cause of Variable B? | Even if non-probabil­ity sampling tech­nique may be used in the recruitment of the entries; however, randomisation is used in the assign­ment of cases to the experiment and control conditions. | Objective:  to explain the cause of this problem... to identify the fac­tors... to establish if factor A is responsible for effect B... |

# **20**

# **INSTRUMENTS OF MEASURE**

## **20.1. Why Instruments of Measure?**

Remember, quantitative method of research relies on numbers. You need objective scales to measure the relevant variables in terms of numeral values.

You could come up with your own measures - which, believe me is a difficult task, and itself an objective for MA or PhD thesis. Often it is better to use a measure that is reliable and valid, that has been used in your population of study, and that matches with your theoretical framework. Before we go ahead, we need to remind ourselves of two important concepts.

## **20.2. Reliability and Validity**

**Reliability of a finding** is the confidence that the finding could be reproduced under the same circumstances, using the same meth­ods, among the same population. This is reliability of the finding or the results. We can also talk about the reliability of an instrument.

Reliability of the *instrument* is the confidence that when the in­strument is administered under the same circumstance to similar populations it will consistently produce the same results.

**Validity of the finding,** on the other hand, is the confidence that what is shown by the finding corresponds to reality. That, it is true. I Validity of the instrument is also the confidence that this scale will produce results that will correspond to reality.

## 20.3. What Is a Variable? And Types of Variables

Now let us tackle the other question: what is this dragon called 'variable'? We mentioned it in passing when we were talking about conceptual framework. I am sure, you remember from your primary school the formula for Area of a Circle, a = 7ir2. **Here,** we know the value of *n (=22/7),* so it is a constant. We do not know the value of r; its value can vary, therefore, it is a variable. Its value can be anything at all, hence it is independent variable. We do not know the value ol the Area of the circle also, so it is a variable too; and as it is assumed in this formula, its value depends on the value of radius, therefore il is the dependent variable.

Similarly if we hypothesise that the Number of Hours of Study has an influence on the Outcome in an Exam, then Hours of Study is the independent variable and the latter is the dependent variable. In the section on conceptualisation we spoke of other types of variables based on their function in the study, such as, mediating variable, moderating variable, etc.

Now we have to look at another set of types of variables, based on the content. This classification of variables emerge from the nature of numeral value using which the variable is measured. We have scale variables, nominal variables, interval variables (such as units of temperature), and ordinal variables (that includes units of ranking). For the sake of simplicity let us focus on scale and nominal variables.

**Scale Variable:** It is also referred to as Ratio Variable. SPSS uses the term, 'Scale'. It is a variable that measures real numbers. Where zero has a value of true zero meaning nothing. Unlike in temperature measurements (Interval Variable), when we say water freezes at OOC, here zero is not the absence of temperature, but only a reference point. Technically, in a scale variable the interval between adjacent scores are separated by an equal interval; where there is true **zero.**

**Nominal Variable:** It is also referred to as Categorical or Discrete Variable. SPSS uses the term, 'Nominal'. It is a variable that groups participants into categories, for instance on the basis of gender, religious affiliation, educational level, or variables that measure in : terms of Yes and No. Here, even if we use numbers, say, 1 for yes and 0 for no, the numbers are mere names or categories used to group people. At the end of it we obtain numbers from these variable not in terms of degrees or scale or level on a variable, but by counting the frequency of those answers.

While some variables could be measured in terms of either of the two numeral values, most variables could be measured in terms of both values. For instance, gender cannot be measured in terms of degree, so it cannot be a scale variable. Similarly, Yes/No questions are discrete or nominal variables too. However, age can be measured in terms of scale when you ask the real age of the participant. Or age can also be measured as a nominal variable when you group age in particular ranges and ask participants to select a group that is most appropriate to them (See Table 20.1).

**Table 20.1.**

**Examples of Variable Measurement**

|  |  |
| --- | --- |
| **Scale Variables** | **Nominal Variables** |
| 1. **What is your** age (in years)?   c. What was the level of happiness on the day of your wedding? (Mark in a scale of 1 to 10)  1 2 3 4 5 6 7 8 9 10 | b. What is your age (tick the appropriate range):  18 to 21 years  22 to 25 years  26 to 29 years  d. Were you happy on the day of your wedding (yes/no)?  Yes  no |

## **20.4. Types of Items in an Instrument of Measure.**

Since there are different ways of measuring variables, we also need to decide how we want to measure the variables. Based on your choice you

**Likert scale** (Continuous Variable - Scale variable): Likert scale is to measure constructs that are in a spectrum or continuum. We get a scale value out of it, that is, we get a score. As it is the case in item (c) of Table 20.1. When we have many items to measure the same variable, then reliability level goes up. Sometimes one variable could be measured in terms of different dimensions and they could be analysed separately and together.

**Yes/No** **Questionnaire** (Dichotomous/Discrete Variables - also Nominal variable). As it is the case in item (d) of Table 20.1, these are closed-questions. We can group the participants on the basis of those who say yes or no.

**Multiple choices** without numbers (Nominal variables): As it is the case in item (b) of Table 19.1., these items are also nominal variables. They can be used to group participants and their results could be reported in terms of descriptive statistics either in frequency (how many people chose which category) and/or percentages.

**Vignette-items:** or Scenario based questionnaire contain special type of items that offer a situation and how participants might react. Thesecould measure attitudes. These could be scored either or nominal variable or scale variable in a Likert scale.1

Remember, Likert is a name, and hence always with a capital 'L'.

**Box 20.1.**

**Vignette Questionnaire**

1. At the middle of the night you wake up with smoke al! around you. You realise your house is on fire. Your reaction would be...

a) Run out of the house;

b) Take time to decide what to do;

c) Attempt to put off the fire;

d) Search for other members of your family.

2. You were travelling by ship on Lake Victoria, the captain an­nounces that ship has hit a rock and it has to be evacuated. Your reaction would be...

a) Find the nearest life-boat;

b) Observe what is happening around you;

c) Offer some advice to those responsible how best to deal with the crisis;

d) Try to help children and (other) women to evacuate first.

## **20.5. Selection of a Standardised Instrument**

There are so many published instruments of measure on almost anything under the sun. Try the following steps in the WWW,

**Step 1:** Google: "scale" + one or two key word of your construct

**Step 2:** Examine the lists

**(Step 3:** change key words if need be)

**Step 4:** Read academic articles which report the validation process of the scale; read articles that have used the scale in research.

**Step 5:** Modify your research question(s) if need be and adjust your conceptualisation.

**Step 6:** Choose the right instrument; report its reliability and validity in previous publication.

Some Caveats in the Use of Ready-made Instruments:

a) When you select a scale, download also the original publication and id. file that tells you how to use the scale - with cut off points, calculation! reversed items, etc. You need to use a scale as the authors intended it in be used.

b) Be careful about reversed item. Some items are reversed for the sake of validity. We need to be sure of them.

c) Make sure if the instrument was previously used among your population or similar population, if not, you might have to conduct a pilot study.

d) Ensure that the language is appropriate to your population.

e) These caveats should not discourage you in using ready-madeinstruments. That is the way forward. If you have the courage read below on the complexity of developing a good quantitative questionnaire.

## **20.6. Developing an Original Questionnaire for Quantitative Study**

***(a) Conceptual clarification of the construct:***

First step in the development of any instrument is to clarify the concepts, particularly picking up dimensions that make up the con­cept. There are many ways of achieving this. I list a few:

*Literature review* of how other psychologists or sociologists have discussed the concept: sometimes, psychologists also look to other conceptual sources outside of psychology, such as, philosophy, religious traditions, and other social sciences. Most of the existing instruments of hope have been developed by means of this method.

*Consultation among experts* (Jeste et al, 2010): this may be carried out by means of interviews, or focus group discussion, or Delphi method. Qualitative methods of research are particularly useful to generate themes that underpin a particular construct.

*Lexical analysis* (Mayer, 1994) an exhaustive list may be created of words and expressions that are present in a particular language or a textual source on the subject, which refer to the concept. These lexical equivalents are then streamlined into groups through expert help, and out of which items are generated for a questionnaire.

*Typical prototype analysis* (Kearns & Fincham, 2004): this begins with an open-ended questionnaire that invite a group of participants id define a concept. The results are summarised creating a list of definitions or phrases that define the concept. This list is then circulated among a group of participants who carry out a priming task in ordering the' phrases according to importance. This process may be carried out among two groups to compare the results for reliability. Finally, a list of phrases or dimensions that define a concept is reported.

(b) *Development of a questionnaire*

Making use of the dimensions, or themes, or lexical phrases that may emerge from the above exercise a questionnaire is developed with a certain number of items. Each item would have only one basic Concept. If the construct can be conceived as continuum then Likert Kale is used inviting participants to make in a scale of say, 5 or 7. If the construct could be conceived as a discrete variable then the item Is constructed with a yes or no answer.

(c) *Data collection and factor analysis of the data*

The questionnaire is administered among a homogenous group, often together with another validated questionnaire. The collected data is statistically verified for reliability, validity of various types, particularly, factorial validity, that is items that are supposedly measuring the same dimension of the construct should be statically correlating to each other. Others tests, such as test/re-test reliability, are also carried out.

*(d) Finalisation of the instrument*

The instrument is finalised only when it has yielded acceptable values in terms of statistics. The items that did not correlate well are omitted thus also reducing their number. In the final version of the instruments items measuring different dimensions would be mixed up and some of them reversed.

# **21**

# **RELIABILITY OF INSTRUMENTS OF MEASURE:**

A finding is as good as the instrument used. If the instrument of measure is flawed then the finding is flawed. We have already defined reliability. We will focus here on how in statistically measure reliability (internal consistency reliability) n| the instrument, once we have collected data.

## **21.1. Measure of Internal Consistency Reliability: Cronbach's Alpha**

***(a)******Before collecting data***

When you are reviewing the scale in the Method chapter, it ii necessary to report at least the following reliability scores:

a) Internal reliability: Cronbach's Alpha (a).

b) Test - Retest Reliability: Pearson's r.

c) And whatever is available in the published papers of the scale. Tin\* will justify the selection of the measure for your study.

Example of a Report for Values in Action (VIA) Scale (with 2-111 items; 24 subscales)

a) Reliability value in Cronbach's alpha for all subscales is high (a> ,70) One recent study (Shryack, Steger, Krueger, & Kallie, 2010) reported an even higher mean Cronbach's alpha (a =.81).

b) Stability in terms of test-retest correlations over four months is reported-il to be good (r > .70) (Peterson & Seligman, 2004, p.631);

c) Validity expressed by rating by friends or family members of u participant's top strengths correlate moderately (r = .3).

*(b)* ***After collecting data***

In the Results section/chapter, it is in place to report the internal reliability of the instruments that you have used in your study. This is a simple process.

How to *interpret the results?*

The value of Cronbach's a ranges from 0 to 1,1 being the highest Coreof reliability. Interpret the values as presented in Table 21.1. See a later chapter for the way to report the findings.

|  |  |
| --- | --- |
| **Table 21.1.**  **Interpretation of Cronbach's Alpha** | |
| **Cronbach's alpha** | **Internal consistency** |
|  | Excellent |
|  | Good |
|  | Acceptable |
|  | Poor |
|  | Unacceptable |

## 21.2. Cronbach's Alpha on SPSS

Here **is** a simple guide to carrying out internal reliability analysis onSPSS using Cronbach's alpha:

In SPSS: Analyse > Scale> Reliability Analysis Select all the items of the scale (if there are reversed items put themin the proper direction and select them) **>** Tickalpha >OK.

# **22**

# **DESCRIPTIVE STATISTICS**

## **22.1. What Is and Why of Statistics?**

What is statistics is simply quantitative facts. It is also the examination of the numeral characteristics of a sample. Statistics offers us some easy ways in handling and examining numbers. In attempting to answer the question of why statistics we need to answer the question of what are the advantage 1 of numeral data.

Here is a simple answer: when we reduce reality to numbers, we achieve a certain level of objectivity. And numbers are universal. If we say, there are two chairs out there - it is easy to verify independently if there are indeed two chairs. And when we refer to two objects it will be the same in Europe, Africa or Asia. While dealing with numbers, unlike with textual data, the subjective feelings and opinions of the researcher are minimised. Thus, reliability increases.

Finally, statistics helps us summarise large quantity of data, und examine if what is true of the sample is true of the population, we .in-studying.

There are two types of statistics:

* + **Descriptive Statistics:** Use of statistical methods to summarise and l<> describe the data in terms of frequencies, mid-value, spread, etc.
  + **Inferential Statistics:** On the basis of patterns in the data drawn from the sample, to draw inferences about the population being studied.

In this section we are focusing on descriptive statistics. In gener.il descriptive statistics deals with reporting average scores, frequencies and percentages. But often the average scores could be misleading, il may not represent the scores of every individual in the group.

## **22.2. Central Tendency**

When we begin to deal with large set of numbers, we realise that they are enjoyable to deal with, because they are intriguing. They (have their own behavior. And in interpreting the meaning of the numbers we need to understand how they function. One of the Important concepts that we need to understand in order to judge the value of numbers such as the average (mean score) is normal distribution. This leads us to a whole range of terminology. Let us drill with them one by one.

**a) Mean:** Refers to the arithmetic average of the data. That is, it in I ho the total sum of all the scores divided by the number of scores. The mean is the simple average of the scores. It is calculated by Mailing all the values and dividing the total by the number of cases.

As an example, look at the age of my family members. Find the mean:

3, 7, 5,13, 20, 23, 39, 23,40, 23,14,12, 56, 23, 29

The sum of these numbers is 330

There are fifteen numbers.

The mean is equal to 330 /15 = 22

**The mean of the above numbers is 22**

**b) Median:** is the midpoint - the 50th percentile. That is, if you are all the scores in order from the highest to the lowest, half of the scores will be above the median and half below it. In other Words, the median is the middle number. It is the middle value of a distribution. That is, there would be equal number of cases below as above the median value.

As an example, again, look at the age of my family members. Find the median:

3, 7, 5,13, 20, 23, 39, 23, 40, 23,14,12, 56, 23, 29

If we put those numbers in order we have:

3, 5, *7,*12,13,14, 21, 23,23, 23, 23, 29, 39, 40, 56

There are fifteen numbers. Our middle number will be the eighth number:

3, 5, 7,12,13,14, 21, 23, 23,23, 23, 29, 39, 40, 56 The median value of this set of numbers is 23.

**c) Mode**: The most frequently occurring score or scores. The moid1 is simply the most frequent (repeated) number in the distribution.

As an example, again, look at the age of my family members. Find the median:

3, 7, 5,13, 20,23, 39, 23, 40, 23,14,12, 56, 23, 29

If we put those numbers in order we have:

3, 5, 7,12,13,14, 21, 23, 23, 23, 23,29,39,40, 56

This makes it easy to see which numbers appear most often.

In this case the mode is **23**.

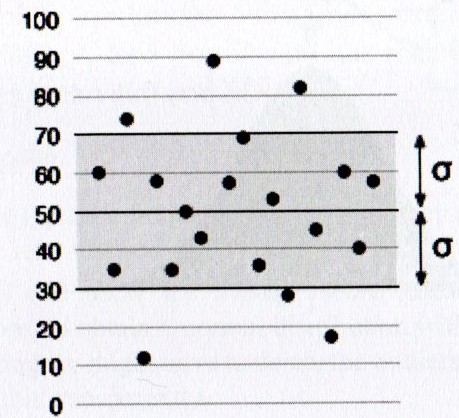
**(d) Range:** the gap between the lowest and highest scores; it is a crude way of estimating the variation of scores. But there is a more sophisticated concept of judging the spread of scores.

## **22.3. Standard Deviation**

It is the measurement of the distribution of data about a mean value. It is used to measure "statistical dispersion". It shows how much scores vary around the mean score.

Standard Deviation (SD) is a measure of the dispersion of the cases around the mean. When data is distributed in a normal distribution, about two thirds of the data values lie within 1SD on each side of the mean; 95% of values lie within 2 SD of the mean.

The SD is often quoted with the Mean to show how reliable is the mean score, and the possible variation on it. Figure 22.1. shows a data set with a mean of 50 (shown in blue) and a standard deviation (a) of 20 units.

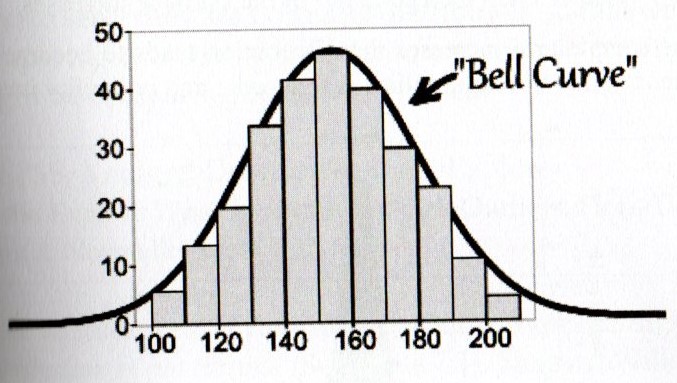


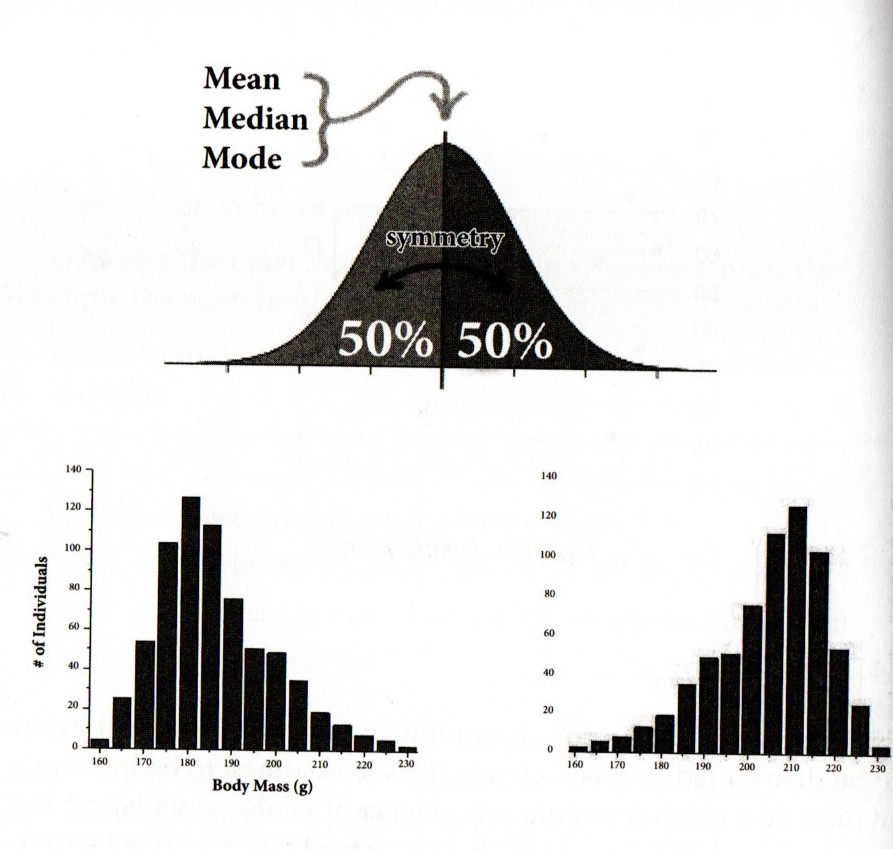
*Fig. 22.1. Distribution*

## **22.4. Distribution**

When a large data is put on a graph, in an ideal situation the data will be distributed as a bell-curve. This is assumed to be the representation of a normal population. Hence it is also a statistical fact that larger the data the more likely are we to obtain a near bell-curve.

What this means in terms of central tendency is that in a normal distribution the mean, median, and the mode are the same! And the Standard Deviation is 1.

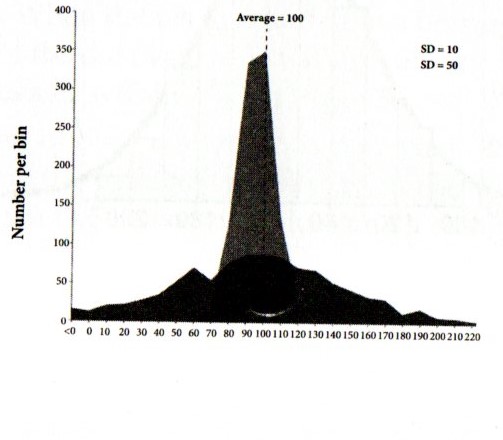


Interpretation of Data:

• If the SD is very high then it could be caused by outlier(s). If the outliers are few it is ok to remove them and recalculate.

• If the p-value is small then certainty of the estimate increases.

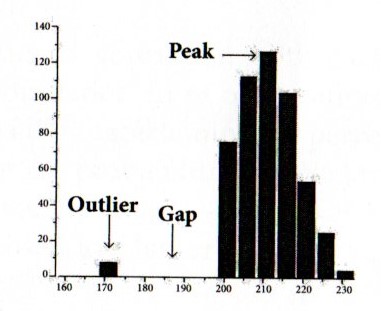
• As the sample size increases the distribution tends to become noim.il and hence error through outliers is reduced - and reliability increases



Two sample populations with the same mean and different standard deviations. Red population has mean 100 and SD 10; blue population has mean 100 and SD 50;

*What are Outliers?*

* They are typical infrequent observations. They are extreme values. After they are removed you could have better understanding of the tendency.
* Outliers will skew the average score (mean) towards themselves. Therefore, to obtain a normal distribution with an aim of generalising the finding we might have to delete the outliers. You need to justify this and do this transparently.



## **22.5. Testing for Normality in SPSS**

When we want to compare two scale variables against each other, we need to see if they are normally distributed, so that we are sure we are comparing two sets of data that are similar in nature. Otherwise, we might be comparing apples with roses.

In SPSS: Analyse>Descriptive Stats>Explore

At the Explore Window: Statistics>Tick Outliers; Plots>

Tick Histo­gram & Normality plots with tests

How to interpret: If Kolmogorov-Smirnov test is significant then the *distribution is not normal* (See Table 7.1). Shapiro-Wilk test is more Conservative - it could show significance even if the Kolmogorov-Smirnov is not significant.

**Table 1.**

**Tests of Normality**

|  |  |
| --- | --- |
| Kolmogorov-Smirnova Shapiro-Wilk Statistic df Sig. Statistic df | Sig. |
| Age .098 127 .005 .924 | .000 |

a. Lilliefors Significance Correction

# **23**

# **INFERENTIAL STATISTICS**

## **23.1. Descriptive Versus Inferential Statistics**

Descriptive statistics includes statistical procedures that are used to describe the population we are studying. It also includes presenting summaries of participants' opinion in frequencies and percentages. The limitation of this is that the finding cannot be generalised.

Inferential statistics is concerned with making predictions or Pyrenees about a population from observations and analyses of a simple. This is achieved by ascertaining the percentage of probability in the finding. Higher the probability (p-value) the higher possibility that the result occurred by chance - by fluke! Therefore, the result should not be generalised to a larger population.

## **23.2. Hypothesis and Null Hypothesis**

Having a hypothesis for your study is meaningful when you Will use statistics to test the hypothesis. The expected result will support the hypothesis and lack of expected result will reject the hypothesis. While using inferential statistics it is meaningful to use a null hypothesis.

## **23.3. Statistical Significance**

The statistical significance is a statement about the likelihood of the observed result being an outcome of pure chance. It is reported as a p-value (the level of probability).

In social sciences p-value is fixed at 0.05, that is, for a result to taken seriously there is only up to 5% of chance (fluke) in the result or 95% likelihood of not being an outcome of chance.

How to interpret the statistical significance?

If p is set at 5% (= 0:05):

p < 0.05: A significant difference.

p < 0.01: A highly significant difference.

p < 0.001: A very highly significant difference.

## 23.4. What Does Inferential Statistics Do?

In simple terms, inferential statistic takes into account three factors*',* in order to say if your finding is a product of luck/chance, or really that this could be generalised for the population. These three factors are the value of the data itself (for example if you are comparing two groups then the difference between the two groups itself in their mean scores), sample size (larger the sample size, the larger the possibility to generalise), the standard deviation (smaller the SD, the data is falling close to each other, and hence could be taken seriously. Table 23.1 Provides a summary of the simple statistical analyses that this book will cover.

**Table 23.1.**

**A summary of Statistical Analysis**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Type of Analysis | | Type of Variables(Type of Measure) | What does it test? | | | Statistic & Sign | | Expected Values Interpreting & Reporting |
| Reliability of Scale | | Multiple-item scales | Tests internal reliability for multiple-item scales - particularly with Likert Scale | | | Cronbach's | | Ideal value is 1(100% reliability)  excellent  good  acceptable  poor  unacceptable  Report:mean scores, no.of items. |
| Chi-Square | Nominal & Nominal | | | Is there an (statistically significant) association between two  nominal variables? | Chi-Square | | Look at Significant level (p<.05); Report: X2(df) - #, p | |
| Correlation | Scale & Scale | | | Is there a correlation between the variation in two variables: as one variable increase does the other variable in­crease or decrease? | Pearson's r | | Look at Significant level (p<.05); Ideal value of r is 1. r£0.7 Very high 0.7 £ r < 0.9 Good 0.6<a<0.7Ac-ceptable 0.5 ^ a < 0.6 Poor a < 0.5 Unaccep­table | |
| Comparison of means (t-test) | Nominal & Scale | | | Nominal variable with two groups is used as the group­ing variable; scores on the scale variable is compared between the two groups. | Student's t | | Look at Significant level (p<-05); Report: t(df) = #, p | |

**Note:** Experimental designs often involve ANOVA or MANOVA analysis. This is an extension of t-test (when there is more than two nominal variables); When there is more than two variables in a correlational analysis we can determine which variable is a stronger predictor by carrying out regression analysis.

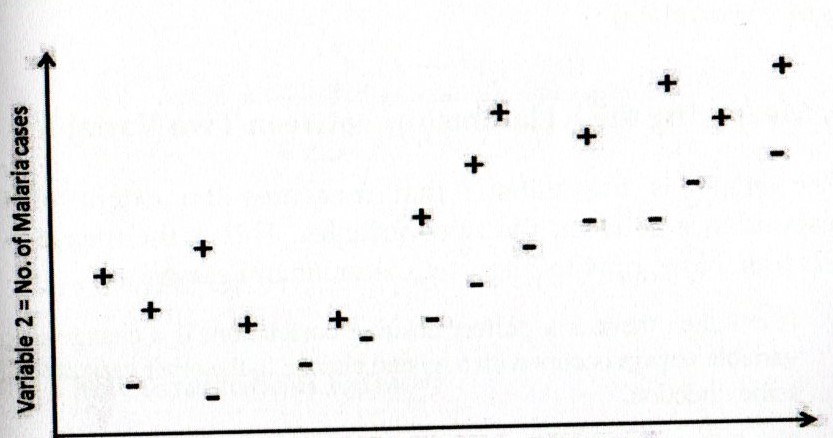
# **24**

# **TESTING CORRELATION**

## **24.1. What Is Correlation?**

Correlation is the association between two variables such that the variation is one variable is accompanied by the variation in another. The variation could be in one direction, that is, as one variable increases the other also increases, and as one variable decreases in value the other also decreases. This unidirectional correlation is referred to as Positive Correlation. When the variations in opposite directions, that is, as one variable increases the other also decreases and vice versa. Then this would be Negative Correlation.

Figure 24.1 illustrates the relationship between two variables: Temperature Levels (indicates as - sign) and Number of reported Malaria cases (marked as + sign). When the two variables are plotted in a chart, it shows that as the first variable increases the second variable also increases. This suggests a positive correlation.



**Variable 1 = Average Temperature of the month**

*Fig. 24.1. Illustration of correlation*

## **24.2. Some Points of Relevance in Correlation**

A correlation is a measure of the relationship between two variables. Therefore, in order to perform a correlation, there should be two values recorded for each participant - one for each of tin-variables involved. Because this technique involves two variables. It is termed "bivariate".

Each variable should have many possible values ("Scale"). For example, 'age' could be a suitable variable for use in a correlation, but 'gender' would not ("Nominal").

Correlational techniques are often used in survey-based methods, as well as in other contexts.

An example of correlational research would be a study in which we compare reaction time to sense stimulus and alcohol consumption What makes this correlational is that we are interested in the extent in which reaction time to a stimulus changesgiven the extentof alcohol consumption. Thus, we have not placed people into groups (e.g., 'heavy drinkers' and 'social drinkers'), but instead we are using a continuous measure of alcohol consumption. Reaction time is also a continuous measure. Here, our hypothesis could be that as alcohol consumption increases reaction to stimulus decreases. This suggests a negative correlation.

## **24.3. Measuring the Relationship between Two Variables**

*Pearson's r* is the statistic that measures the extent of the correspondence between the two variables. This is the measure of correlation*.* Now, how to interpret the value of Pearson's r?

* + If r=l then there is a perfect positive correlation; if a change in mm variable always occurs with a related change in the other variable in the same direction.
  + If r=0 then there is no correlation; that is, if change in one variablecompletely unrelated to change in the other.

If r=-l then there is a perfect negative correlation; if a change in onevariable always occurs with a related change in the other variable in the opposite direction.

Usually, the value of r would fall between 0 and 1. That is the \ole range of decimal points. Together with the strength of the relationship that is given by the value of r, we also need to note two other values. One, the valence: that is, the r value is in positive or Negative. Secondly, for the relationship to be considered important, |l needs to also be significant; that is, we need to be confident that the relationship we are observing could not have occurred by chance.

When you compute a correlation with SPSS, you should be concerned about the value of *r,* and also the *p* value. A helpful rule of thumb is that a r value greater than 0.3 (or -0.3) is interesting,

and as ever, a *p* value of less than 0.05 means that the relationship is potentially interesting.

## **24.4. What Is Happening within a Correlational Analysis?**

The aim here is not to discuss in detail the formula. But it is good Air even those who are using SPSS to know what is happening in an analysis. Here is the formula for computation of Pearson's r.

Here, r = Pearson's r; x and y are the two variables.

## **24.5The Correlational Fallacy:**

Onemust be aware of the correlational fallacy. This is simply the oft-repeated point that correlation between two variables says nothing about whether one variable is the cause of the other.

For example, if there is a strong correlation between alcohol ,1 aggressiveness, it is impossible to tell from this correlation whether aggressive individuals tend to drink more, or whether those who drink more tend to be more aggressive. Equally, it's possible th.il a third factor (e.g., a safe or violent upbringing) accounts for both variables such that the relationship between them is not direct, (ml *mediated* by another variable. It is critically important to be aware of the correlational fallacy.

## **24.6. Pearson's r in SPSS**

Here is a simple guide to carrying out correlation analysis on SPSS:

Hint: First decide what variables need to be used for the analysis? If they are both scale variables, then you can use Pearson's r test.

In SPSS: Go to Analyse menu>Correlate>Bivariate - Select the relevant variables.

Hint: Look for asterisks in the correlation table. Numbers that are marked with asterisks are significantly correlated at levels shown at the bottom of the table.

# **25**

# **COMPARISON OF MEAN SCORES (T-TEST)**

## **125.1. What Is t-test?**

T-test is an inferential tool for examining differences between mean scores of two groups. Let us suppose a research question: Between University of Nairobi and Strathmore, which university Is good at statistics competency? So we collect data from a sampled set ofstudents of both universities and here are the results.

**Table 25.1**

**Scores on Statistics Competency Test**

P. No UoN Strathmore

|  |  |  |
| --- | --- | --- |
| 1. | 50 | 65 |
| 2. | 55 | 61 |
| 3. | 59 | 63 |
| 4. | 58 | 63 |
| 5. | 100 | 64 |
| 6. | 53 | 62 |
| 7. | 59 | 67 |
| 8. | 58 | 66 |
| 9. | 56 | 63 |
| 10. | 95 | 62 |
| Mean | 64.3 | 63.6 |

If you go by the mean scores, University of Nairobi has performed better than Strathmore in the Statistics Competency Test. Can we take this difference seriously? In inferential statistics we ask: is what is true 1 of the sample true of the population? Or did the difference between f the scores happen by chance? If you notice the scores seriously, first of all, our sample size is small; secondly, there are two participants in UoN who have skewed the average, and this is not representative of I the sample. A t-test will help us verify if the difference in mean scores I is statistically significant.

**Table 25.2**

Scores on Statistics Competency Test

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Group | N  10 | Mean | Std. Deviation | Std. Error Mean |
|  | UoN | 64.3000 | 17.76420 | 5.61753 |
| Marks | Strathmore | 10 | 63.6000 | 1.89737 | 60000 |

As for the example of the two universities, Table 25.2 suggests that there is a difference in mean scores, however, the SD is quite large for the UoN group, and given the small sample size it is likely that the difference in mean scores should have occurred by chance. Sure enough, the t-test was not significant, t (18) = 124, p=.903.

## **25.2. Some Points of Relevance in T-test**

A comparison of mean scores envisages at least two groups who are measured on a common denominator. Actually, t-test is possible only between two groups.2 Therefore, in order to perform a comparison, we need to have data on two variables for each participant. One variable should be Nominal variable that divides the participants into two groups (in the above example, University: UoN and Strathmore), and another variable records values on a Scale variable (in the above case, the scores in the Statistics when there are more than two groups, we useANOVA. T-test is likelyto produce Type 1 error.

Competence Test). In SPSS the above data will actually appear as in Table 25.3.

**Table 25.3**

|  |  |  |
| --- | --- | --- |
| **Scores on Statistics Competency Test** | | |
| **P. No** | **University** | **Scores** |
| 1. | UoN | 50 |
| 2. | UoN | 55 |
| 3. | UoN | 59 |
| 4. | UoN | 58 |
| 5. | UoN | 100 |
| 6. | UoN | 53 |
| 7. | UoN | 59 |
| 8. | UoN | 58 |
| 9. | UoN | 56 |
| 10. | UoN | 95 |
| 11. | Strathmore | 65 |
| 12. | Strathmore | 61 |
| 13. | Strathmore | 63 |
| 14. | Strathmore | 63 |
| 15. | Strathmore | 64 |
| 16. | Strathmore | 62 |
| 17. | Strathmore | 67 |
| 18. | Strathmore | 66 |
| 19. | Strathmore | 63 |
| 20. | Strathmore | 62 |

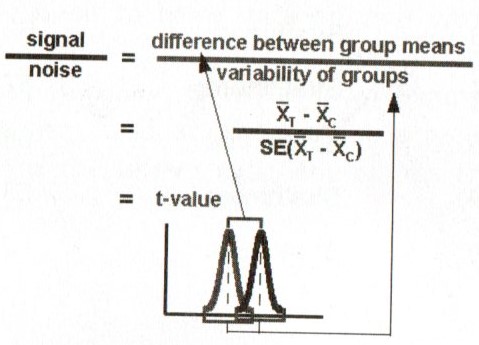
**What is Degree of Freedom?** One of elements you have to in a t-test is degree of freedom. "The Degree of Freedom is the number of scores in a given set that are free to vary" (Haslam & MaCarthy, 1998, p.182). In other words, the number of values that can vary from the mean score.

Imagine a waiter in a bar taking orders from five people at a table, and wants to remember which customer ordered what drink. II In-remembers all the five drinks and remembers also any four peoples drinks then he can easily relate the fifth drink to the fifth person. In other words, it is enough to remember four drinks. Here the degree of freedom is four. That is five minus one.

**Why is this statistical test called a t-test?** If you notice, most of the statistical tests have a name of a person who came up with the test, such as, Pearson, Cronbach, etc. However, t-test seems nameless. And often it is attributed to a person called, "Student". Here is the story. William Sealy Gosset was a statistician working for Guinness brewery in Dublin, Ireland. He developed the t-test as a way of comparing the quality of stout. He published the test in the journal, Biometrika in 1908. But could not use his real name because his employer did not want to give away their trade secret: use of statistics in manufacturing. So, Gosset identified himself with the pen-name in the publication, 'Student.'

## **25.3. What Does a T-test Do?**

The t-test applies statistical procedure to compare the different' in mean scores in relation to the spread of the data (SD), and tin-number of cases (sample size).



On what criteria does the t-test report significance? There are threecriteria:

* The larger the difference in means between the two universities, the more confident we would be that the result is not a fluke.
* The more spread out the scores (Standard Deviation) are from each University, the less confident we would be that the result is not a fluke.
* The larger the number of students (sample size) drawn from each univer­sity for the study, the more confident we would be that the result is not a fluke.

## **25.4. Two Types of T-tests**

1. ***Within Subjects or related t-test (Dependent t-test or Paired-Sam­ples t-test):***

* Within Subjects t-test (also known as related t-test) is used when we have one group of people who are being measured twice; for example, we might consider the academic performance of a class in the first semester and second semester. This kind of study is called a within subjects study, and requires a within subjects t-test.

1. ***Between Subjects or un-related t-test (Independent t-test):***

* When two groups are measured separately to see if their scores differ, that is a between subjects t-test. For example, we might consider the academic performance of one class versus another class in the same semester. This kind of study is called a between subjects/samples study, and requires a between subjects t-test.

## **25.5. T-test in SPSS**

Here is the simple guide to how to carry out a t-test in SPSS:

In SPSS: Use Analyse menu>Compare Means>Independent samples t-test,

(if you are comparing the scores from two independent groups).

In SPSS: Use Analyse menu>Compare Means>Paired samples t-test

(if you are comparing two scores from the same group). In SPSS: Use Analyse menu>Compare Means>ANOVA

(One way Anova: if you are comparing more than two groups on the same type of score).

# **26**

# **PEARSON'S CHI-SQUARE (CROSSTABS)**

## **26.1. When Do We Use Chi-Square?**

Pearson's Chi-Square test is a very neat way of testing the association between two nominal or categorical variables. Nominal variable is a construct that is measured in terms of [two or more categories, such as gender or just a Yes/No question. [Let us consider the following research question: Is there a gender f influence on liking towards chocolates? This question could also be [rephrased as follows: Do women like chocolates more as compared [ to men? Or still another way: Is there an association between Gender and liking towards chocolates?

Well, Table 26.1. presents the results of an imaginary data:

**Table 26.1.**

**Influence of Gender on Liking for Chocolate**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Female | Male | Total |
| Liking Chocolate (Yes) | 22 | 9 | 31 |
| Not Liking Chocolate | 8 | 15 | 23 |
| Total | 30 | 24 | 54 |

The table shows that there were 54 participants in total. Out of which 30 were female and 24 male. Out of the 30 female, there were 22 of them who say they like chocolates and eight of them say no. On the side of the male, out of 24, nine of them claim that they like chocolates while 15 of them say no. From the look of things, it seems that more women like chocolates. Is this hypothesis supported by this data? We still do not know.

Table 26.1 presents only the descriptive data - that is, a summary of the frequency. This could have happened by chance, given also that there were more women participants in the sample. Only inferential statistics can help us see what is happening between numbers, and thus test the hypothesis that states that: Women like chocolate more as compared to men.

Notice that the two variables (Gender and Liking of Chocolate (Y/N)) are nominal variables. Nominal variables are also referred to as discrete or categorical variables. Therefore, we can carry out,Pearson's Chi-Square test. And actually the test when carried out lift­ing the above data showed that the results were significant. That b, women tend to like chocolate more as compared to men, x2 = 7.002, p=.008.

Note that the statistic for this test is referred to as Chi-Square, represented by the Greek letter x2.

## **26. 2. What Does a Chi-Square Analysis Perform?**

The chi-square test is used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories. Does the number of individuals or objects that fall in each category differ significantly from the number you would expect? Is this difference between the expected and observed due to sampling variation, or is it a real different Here is the formula:

(observed - expected) expected

X2=∑(observed-expected)2

expected

Observed is what we see in the actual cell. How is the expected value calculated? From Table 11.1, let us take the females in .mi sample, they are expected to be 30 out of the total of 54 (i.e., 30/54) in the population from where this sample is drawn; similarly, we take 31/54 to estimate what proportion of the population are likely to like chocolates. By this assumption, we could "expect" the number of female chocolate lovers to be:

(30/54) \* (31/54) \* 54 = 17.2.

What we actually have is 22, therefore we can be sure that there Is going to be a significant level of female yeses. Sure enough, x2 test is significant.

## **26.3. Chi-Square in SPSS**

Here is the simple guide on how to carry out a Chi-Square test in BPSS:

In SPSS: Use Analyse>Descriptive Statistics>Crosstabs

((select one variable into rows and the other into column; make sure to tick the Chi-Square within the statistics option).

*further Hint: Tick "Display Clustered Bar-charts"; Select Cells -and tick Percentage.*

# **27**

# **INTRODUCTION TO REGRESSION**

Regression analysis3 is a statistical process for estimating the relationships among variables. Its focus is on estimating the relationships between a dependent variable (variable that is influenced, predicted) and one or more independent variables (influencers, predictors). It is a further development on correlation. Correlation only quantifies the extent to which two variables (say, X and Y) are related; however, linear regression draws a fit between the two variables in such a way as to show how much does X predict Y. it is important to remember that both analyses do not claim to establish cause-effect relationship. There are different types of regression analysis. This section introduces the student to linear regression.

For instance, imagine that a researcher has observed (unsystematically) that those who have gone through formal education have fewer number of children. In this case the dependent variable is number of children in a family, and the independent variable could be level of formal education. There could be other independent vari­ables such as culture, peer pressure, religion. Regression analysis could tell us to what extent the independent variables (education, culture, peer pressure, religion) predict the number children.

**27.1. Objectives of Regression Analysis**

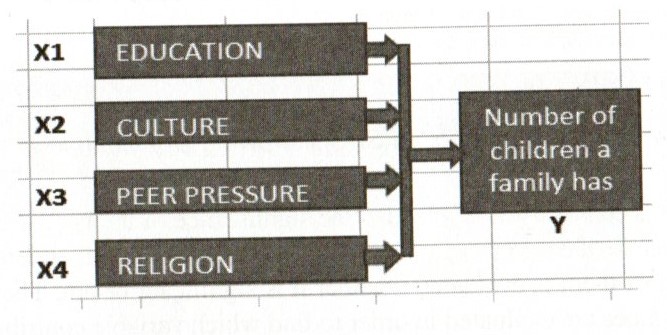
Regression analysis therefore strives to achieve three objectives:

1. To determine the extent to which independent variables relate to de­pendent variable. That is, to examine if the variation in independent variable(s) accompanied by the variation in dependent variable. This is obtained through establishing correlation. This is determined by correlation coefficient simply known as R. R is measured on a scale of 0 to 1, where 0 means no relationship and 1 indicates 100% relationship. Figure 27.1 is a sample output from SPSS which shows the correlation.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model Summary | | | | |
| Model | f R | R Square | Adjusted R  Square | Std. Error of the Estimate |
| 1 | C -903a | .816 | 795 | 1.327 |
| a. Predictors: Consultant, Culture, Education, Peer Influence | | | | |

*Fig. 27.1. Sample Output from SPSS*

The extent the independent variable(s) explain the dependent variable is another element that regression analysis tries to find out. Differently put to what extent do the independent variables predict the dependent variable. By doing so Coefficient of determination (R2) **is** established. This is measured in percentage. R2is multiplied by 100 In order to convert it into percentage. This measures the strength of the model. A model is the conceptual framework that is being tested. In our example, the model could be represented as in Fig 27.2.



*Fig. 27.2. The model: Number of children (Y) = (X1) Number of years of formal education + (X2) Culture* + *(X3) Peer pressure + (X4) Religion +... error term.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model Summary | | | | |
| Model | R | R Square | Adjusted R  Square | Std. Error of the Estimate |
| 1 | .903a | .816 | 795 | 1.327 |
| a. Predictors: Consultant, Culture, Education, Peer Influence | | | | |

Fig 27.3 Sample *output from SPSS showing R square of 0.816. We multiply by 100 we get 81.6%. This means the model is a very strong one.*

*2.* Signify Of the model. This strives to find out whether the model is significant at 5% significant level. Significance is measured through probability value also known as p-value. The significant area is between 0.00 to 0.05. This means when the p-value is above 0.05, the model not significant.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Sum of |  |  |  |  |
| Model | Squares | df | Mean Square | F | Sig. |
| Regression | 202.900 | 3 | 67.633 | 38.422 | .000b |
| Residual | 45.767 | 26 | 1.760 |  |  |
| Total | 248.667 | 29 |  |  |  |

*Fig.* 27.4 Sample output *from SPSS showing significance of the model M p<.001.*

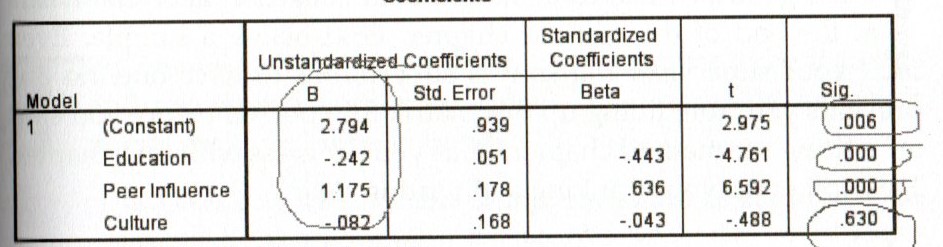
Regressionanalysis offers also the significance of the coefficients of the influence of each of the independent variables on the dependent variable is evaluated whether it is significant or not. Then the beta (ß) values are evaluated in order to find which variable contributes most. Betas are converted to percentage by multiplying by 100.

Fig. 27.5 suggests that Education, Peer Influence bear significantly influence on Number of Children, because their p-value are less than 0.05while Culture is not significant with p=.630 which is greater than 0.05.

As regards the (3\*, Education has a negative sign meaning that there is an inverse relationship between Education and Number of Children, that is as education increases number of children is likely to decrease. On the other hand, as Peer Influence (as measured by the study) increases number of children also increases significantly.

**Coefficients3**

a. Dependent Variable. Number of children



*Fig 27.5. Sample output from SPSS showing significance of the coef­ficients.*

## **27.2. Regression in SPSS**

Here is the simple guide on how to carry out a Regression analysis in SPSS:

In SPSS: Use Analyse>Regression>Linear

(Select the dependent variable - only one, and select the [relevant independent variables. Place them in the relevant boxes.)

# **28**

# **DATA COLLECTION &ANALYSIS MATRIX**

It is a good practice to include a data collection analysis matrix at the end of the method chapter. Find below a sample. Even if your supervisor thinks it is superfluous to have one, no one prevents you from filling up this matrix for yourself before you start off writing the method chapter, or as you progress with that chapter. This will make your thinking and writing clear.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Objectives | Research design | Method of data collection | Sampling technique and sample size | Instrument | Analysis |
| List here your objectives one by one in the same order as in introduction | Mention the research design corresponding in each objective(qualitative or quantitave, etc) | Mention the specific method that will be used to collect data corresponding to the objective (questionnaire, interview) | For each objective mention the sampling techniques exhaustively and the corresponding sample size. | Mention the corresponding instruments . if it is only a few items in the instrument that pertain to a specific objective make that clear. | Be as specific as possible about the type of analysis for each objective. Avoid being generic just mentioning SPSS. |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

# **29**

# **REPORTING QUANTITATIVE RESULTS**

## **29.1. Results Chapter**

The Results Chapter in a quantitative study has to be readable and focused. In order to achieve these ends the following points are to be borne in mind:

* Use Tables only when the data is large and cannot be described in the main text. So, do not use tables and figures when the data can be simply described.
* Do not describe in text all the contents in the Table or Figure. Mention only the main points and then draw the attention of the reader to the details in the Table by mentioning the Table number.
* Do not use expressions, 'Table below" or "Table above", rather just mention Table Number.
* Do not copy and paste tables from SPSS, they are better when you make it on excel or in MSWord.
* When reporting quantitative results, follow the four steps below for each objective or hypothesis.

o Say, what was your objective or hypothesis;

o What test was carried out to test the hypothesis or to fulfil the objective;

o What was the outcome - report it;

o What is the implication of the outcome - was the hypothesis supported or not.

* Finally, for the format of reporting the finding for each statistical test follow the format shown below.

## **29.2. Reporting Reliability Test**

There are two ways the results of the Cronbach's reliability test could be reported:

**Mode 1 - using narrative:** The internal consistency reliability of Personal Growth Initiative Scale (PGIS) was good (Cronbach's a =0.87). The reliability for GBS was....

**Mode 2 - Using a table:** Provide for each scale mean scores and Cronbach's Alpha as in Table 29.1.

**Table 29.1.**

**Reliability of Measures Used in the Study**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Measure | Items | Cronbach's a in the present data | Mean | SD | Scoring Range |
| IV1 | Curiosity | 10 | .667 | 3.91 | 0.525 | 1 to 5 |
| IV2 | Love for Learning | 10 | .684 | 3.66 | 0.626 | 1 to 5 |
| IV3 | Open-mindedness | 10 | .739 | 4.01 | 0.570 | 1 to 5 |
| IV4 | Creativity | 10 | .719 | 3.93 | 0.553 | 1 to 5 |
| IV5 | Social Intelligence | 10 | .629 | 3.99 | 0.635 | 1 to 5 |
| DV1 | AUDIT (Barboretal., | 10 | .861 | 3.14 | 5.48 | Oto40 |
|  | 2001) |  |  |  |  |  |
| DV2 | SAST (Carries, 1989) | 25 | .859 | 5.20 | 4.69 | Oto25 |
| CV2 | HADS- Anxiety | 7 | .684 | 8.51 | 3.72 | Oto21 |
|  | HADS - Depression | 7 | .567 | 5.56 | 3.15 | Oto21 |

**Note: N = 504.**

## **29.3. Reporting Results of Correlation Test**

**Mode 1:**

The research question, "Would people who entered boarding early in life tend to stay longer in boarding schools?" was answered by a test of correlation between age of entry into boarding and number of years in the boarding. There was a significant negative correlation between age of entry and number of years in boarding (r = -.508, p<.001, n=84). This shows that people who entered boarding early in life tend to stay longer in boarding.

**Mode 2:**

When you are examining the correlation between several pairs of variables, there is a need for a Table. See Table 29.2. for a sample.

**Table 29.2.**

**Correlation between Mature Religiosity and Dimensions of Psychological**

**Wellbeing**

**MRS Auto** Envir. **Pers. Posit.** Purp. **Self-A. PWB**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Mature Religiosity (MRS) 1 Autonomy .346" | | 1 |  |  |  |  |
| Environmental M. | .188 | .542" | 1 |  |  |  |
| Personal Growth | -.069 | .401" | .474" | 1 |  |  |
| Positive Relation | .167 | .469" | .556" | .417" | 1 |  |
| Purpose in Life | .220' | .538" | .493" | .637" | .547" 1 |  |
| Self-acceptance | .279' | .651" | .711" | .568" | .664" .643" 1 |  |
| PWB | .234' | .759" | .781" | .742" | .767" .811" .888" | 1 |

N=80;\*p<.05;\*\*p<.01.

## **29.4. Reporting Results from a T-test**

Here is a typical report for t-test. To test the hypothesis that Being in Boarding School will significantly affect the level of Personal Growth Initiative (PGIS), a t-test was carried out using the scores of PGIS as the dependent variable and Being in Boarding School as the grouping variable.

The descriptive statistics emerging from the results suggested that there was a small difference in the mean scores of PGIS between those who were in boarding school and those who were not (See Table 29.3).

However, the t-test showed that the difference between the mean scores was not statistically significant (t (122) =.704, p=.483). Thus the hypothesis was not supported.

Therefore, the results suggest that being in boarding school may not have any significant impact on the Personal Goal Initiative of the individuals.

**Table 29.3.**

**Being in Boarding and PGIS**

|  |  |
| --- | --- |
| N | Mean Std. Deviation Std. Error |
| Not in Boarding 34  In Boarding 90 | 43.2941 7.65755 1.31326 42.2000 7.74771 .81668 |

## **29.5. Chi-Square Report**

Here is a typical report for Chi-Square test. To test the hypothesis that Those who were in boarding schools will report that they were more happy in school life, a Chi-Square test was carried out using tin-Crosstab function in SPSS. The results showed that among the 12') participants, more of those who were not in boarding school reported to be happy in school life (91.4%) as compared to those who were in boarding schools (73.4%). This difference was statistically significant (x2 = 4.876, p=.027). Therefore those who were not in boarding school are likely to report to be happy in school life.

## **CHECKLIST FOR QUANTITATIVE RESEARCH REPORT**

How would you know, what you are writing is of international quality? Just check out against what highly-ranked academic journals demand. Though journals might have differences in their directives, at least you know you are using one standard method.

|  |  |
| --- | --- |
| No | Descriptions |
|  | **Opening Elements:**  A. Title is 12 words or less; B. Title indicates most important elements of report, i.e., population, focus, methodology, and findings; |
|  | **Abstract:**  A. Abstract is 200 words or less; B. Abstract reflects organisational struc­ture of paper without mentioning the parts (i.e., presents problem/focus of study, research questions, methodology - participants, prac, findings, and key points from discussion of findings). |
|  | **Introduction:**  A. Statement of research problem; B. The necessity for this study has been well-argued (Rationale). C. Literature Review-the knowledge-gap has been very well shown; |
|  | A. Statement of research objectives - they flow from the knowledge gap.  B. Research questions - are stated clearly, matched with objectives;  C. Hypotheses - if any, |
|  | **Method:**  A. Explains how research design fits with research objectives; B. Describes sampling strategy and participant recruitment; C. Describes the research instruments; D. Explains steps of data collection, and data analysis, as well as rationale for each design choice. |
|  | **Results Section:**  A. Tells reader how results will be organised; B. Presents demographic information of participants in composite form; C. Reliability for measures has been established; D. The results are organised according to the research objectives/questions; E. Reports clearly: what was query; what test was carried out; what was the outcome; what does it mean? |
|  | **Discussion Section:**  A. Discusses how findings compare/contrast with what was known anil/m not known in the literature; B. Evaluates if the objectives of the study wart adequately met; C. Discusses limitations of study; D. Discusses position on generalisability of results; E. Discusses implications of findings; F. Indicates area of future research. |
|  | **References:**  A. Citations in-text correspond to sources in reference list; B. the in-text references are included such a way as not to impede the flow of thought; C References are in APA style. D. All references follow typographical norms. |
|  | **Appendix:**  The instruments used for the study is clearly (aid-out. |
|  | **Academic Writing Style:**  A. Effective use of headings; B. Fluent English language; C. Clear, pre­cise writing; D. Correct grammar and usage; E. Avoids bias in language. |
|  | **Coherence:**  A. Between title and abstract; B. Between abstract and body of paper; C. Between focus of study and literature reviewed; D. Between research ques­tions and methodology; E. Between methodology presented and methods employed; F. Between methodology and findings; G. Between findings and research questions; H. Between findings and stated implications. |

# **31**

# **EVALUATION OF THESIS PROPOSAL &THESIS**

Most universities have a marking scheme given to examiners to evaluate thesis proposals and thesis. This is not a secret. Some institutions have it in their thesis policy. A [student should go through the marking scheme from time to time [throughout the process of developing the thesis. Before submitting I the final work, correct for yourself your thesis based on the marking scheme. Here is a sample.

## **31.1. Evaluation Form for Thesis Proposal**

|  |  |
| --- | --- |
| **Evaluation Criteria** | **Area of Evaluation** |
| Introduction: Research area | * Is the proposed study doable? * Is it unique, holding promise to contribute to the area of study; is it directly related to the degree? * Is the research problem academically stated and relevant to the degree? * Are the research questions and /or hypotheses linked to research problem and objectives? |
| Literature Review | * Does the proposal demonstrate adequate understanding of the current literature related to the topic? * Is it a critical review of literature? * Is there an appropriate theoretical and/or con­ceptual framework? * Can the literature review be linked to the objec­tives or used to identify some knowledge gaps to be addressed by the study? |
| Methodology | * Is the proposed research design appropriate? Are the sampling techniques and data genera­tion procedures adequate? Are the instruments described in the main text, and appended to the appendix? Is there a proper description of data analysis techniques? * As a whole, is the methodology transparent and reliable? * Is the proposed method realistic and achiev­able? |
| Referencing, Language, Typos & Layout | * Is the thesis proposal well referenced following APA style (in text citations and references list)? Is the language academic and accessible? Has the work followed standard style of aca­demic writing (use of numbers, punctuation, etc.) * Is the work meticulous about formatting (titles, page, paragraphs, tables and figures, etc). |
| Oral Exposition | Is the candidate able to:  • Show some passion for the area of study?  • Demonstrate capacity to carry out the study?  • Engage in an informed conversation about the research area?  • Clarify questions and rightly justify their choic­es? |
| Any sign of plagiarism? | Indicate yes/no; If yes, provide page references and present a separate report to MA Coordinator before exam. |

## **31.2. Thesis Evaluation Form**

|  |  |  |
| --- | --- | --- |
| **Evaluation Criteria** | **Area of Evaluation** | |
| Introduction | * Is the research problem academically stated, and relevant to the degree? * Are the objectives addressing the research prob­lem? * Are the research questions and /or hypotheses linked to research problem and objectives? | |
| Literature Review | * Does the study demonstrate adequate under­standing of the current literature related to the topic? * Is it a critical review of literature? Is there an appropriate theoretical and/or concep­tual framework? * Can the literature review be linked to objectives or used to identify some knowledge gaps that are addressed by the study? | |
| Methodology | * Is the research design appropriate? * Are the sampling techniques and data generation procedures appropriate? * Is there a proper description of data analysis techniques? * Is the methodology transparent and reliable? | |
| Results | * Are the results appropriated presented? * Are the interpretation/claims supported by the data presented? * Is the analysis appropriate to the epistemological framework? | |
| Discussion | * Do the results discussed address the objectives? * Are the research questions answered/hypotheses tested appropriately? * Is the discussion created by linking the findings to the literature review? | |
| Conclusion | * Are the conclusions derived from the results? * Are the recommendations and/or suggestions for future orientation linked to the gaps? | |
| Referencing, Language, Typos & Layout | | * Is the thesis proposal well referenced following APA style (in text citations and references list)? * Is the language academic and accessible? * Has the work followed standard style of aca­demic writing (use of numbers, punctuation, etc.) * Is the work meticulous about formatting {titles, page, paragraphs, tables and figures, etc). |
|  | |  |
| Oral Exposition | | Is the candidate able to:   * Present their work in a synthesized form? * Demonstrate personalization and appropriation of the research area? * Engage in an informed conversation about the research area ? * Maturely argue their position and graciously concede to a variety of possible interpretations? |
| Any sign of plagiarism? | | Indicate yes/no; If yes, provide page references and present a separate report to MA Coordinator before exam. |

# **32**

# **APA REFERENCING STYLE**

## **Introduction**

It is important to note that the *Publication Manual of APA* is not only a collection of rules for writing footnotes or endnotes or in-text referencing, but it offers guidelines on the preparation of manuscript for publication. The purpose of following a standard style of academic writing in any centre for learning is to introduce the student to a platform on which sharing of academic information is made possible. To begin with, the sharing is between the student and the lecturer, eventually the students are prepared to share their findings and insights with the larger community through academic publication. Hence, it is important for the students to familiarise themselves with a method of referencing.

## **32.1. General Guidelines for Text Formatting**

*Headings*

Most manuscripts can be handled with three levels of heading: Chapter titles, Major Headings, and Minor Headings. APA Style requires the following formats for levels of headings:

**Level 1: Centred, Boldface, Title Case, on its Own Line**

**Level 2: Flush Left, Boldface, Title Case on its Own Line**

**Level 3: Indented, boldface, sentence case heading ending with a period.** The text of the paragraph continues after the period.

**Level 4: *Indented, boldface, italicised, sentence case heading ending with a period****.* The text of the paragraph continues after the period.

**Level 5:** Indented, italicised, sentence case heading ending with .t period. The text of the paragraph continues after the period.

***Quotations***

Quotation marks (with "double quotes") are used in the following context!

* to introduce a word that is ironic, slang, or an invented expression in the first time it is used, e.g., the "goodness of fit" criterion;
* to set off a short direct quote (fewer than 40 words) in the text within quotation marks. Be sure to punctuate appropriately at the end: Period (.) and comma (,) and these punctuations fall inside the quotes. Note: every piece of text or a typical expression that the writer borrows from another author needs to be put within double quotation marks and appropriately referenced. Whenever direct quotations are used the in-text reference should include the page number in addition to author and date.
* When a summary or paraphrasing is used there is no need to use quotation marks, even though reference is given. When quotation nun k» are used to indicate a "verbatim" quotation, nothing is to be changed from the original source, including punctuation and even an obvious error. Obvious error is only indicated by the use of 'sic' within brackets.

***Indented Quotations:***

A quotation of 40 or more words should be set off in an indented paragraph of its own without the quotation marks. If the quotation contains several paragraphs, indent the first line of each subsequent paragraph. See Box 1 for an example.

Box 32.*1:*

*Example of an Indented Quotation*

Evans-Pritchard repudiates this assumption of Durkheim, bas­ing himself on anthropological research:

Surely what [Durkheim] calls 'sacred' and 'profane' are on the same level of experience, and far from being cut off from one another, they are so closely intermingled as to be inseparable. They cannot, therefore, either for the individual or for social activities, be put in closed departments which negate each other, one of which is left on entering the other (Evans-Pritchard, 1969, p.25).

***Use of Bold and Italics***

Bold face is used only for headings. Inside the running text, i bold is not to be used at all. In case the author wishes to accent an expression or a word, this is accomplished by the use of italics.

However, the use of italics should be infrequent, and reserved pri­marily for titles of books and periodicals and for the first use of a new | key technical term. All variables and most statistical symbols should be Italicised as well, except for Greek letters, which should not be italicised.

*Tables*

1. *When to use a table?* When you need to present a large amount of data, it is more efficient to use a table than typing the data in a paragraph. Here is a rule of thumb: If you can put your information in a table of two or fewer rows and columns put it in a paragraph, otherwise use a table.
2. *Formatting a table:* To format a simple table, put a header above the actual table, and include a number for reference. Then type a title in italics either on the same line as the word "Table" or directly underneath. The title is typically not ended with a period. Single spacing is permitted for long tables; double spacing should be used for short tables. Vertical lines for the columns of the table are not shown; horizontal lines are kept to the minimum - only above and below table.
3. *Reference to table within main text:* Every table in your submission should have a unique number. The numbers could be sequential within every chapter or throughout the work. Important: in the main text the author should draw the attention of the reader to a table at a specific point, and should not take for granted that the reader will notice the table. The expression "see table below" or "table above" should be avoided. The table may appear anywhere in the nearest vicinity of the context, and hence refer to the table by its sequential number. This rule applies also for Figures and Appendices. Box 2 offers an example of how to refer to a table in your running text.

Box 32.2: Reference to Tables

For the sake of brevity, results are summarised in Table 4. Some typical statements are included in the Discussion Section to substantiate particular claims.

Eighteen out of the 24 character strengths (CS) were rated as showing some correspondence to ten domains of the data-set (Table 1). Out of these, eight CS showed correspondence to at least one of the domains, and others showed correspondence to more than one domain.

Table 32.

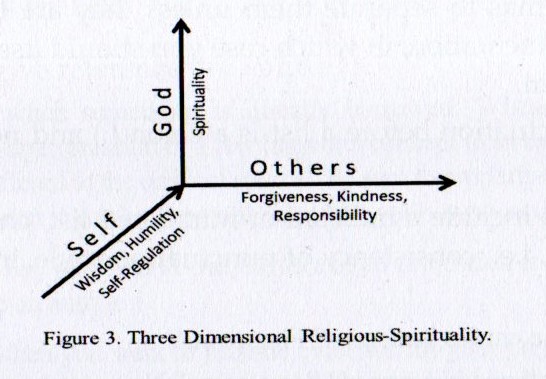
**Summary of scores of the case study participants**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Martin,** | **22, Male** | **Edel,** | **20, female** |  |
|  | **Base-** | **After** | **Base-** | **After** | **Scor-** |
|  | **line** | **intervention** | **line** | **intervention** | **ing** |
|  | **Score** | **Score** | **Score** | **Score** | **Range** |
| **CS1 Curiosity** | **4.30** | **4.60** | **4.00** | **4.20** | **1 to 5** |
| **CS2 Love for Learning** | **3.20** | **3.80** | **3.60** | **3.60** | **1 to 5** |
| **CS3 Open-mindedness** | **4.30** | **4.50** | **4.40** | **4.50** | **1 to 5** |
| **CS4 Creativity** | **4.30** | **4.50** | **4.50** | **4.30** | **1 to 5** |
| **CSS Social Intelligence** | **3.90** | **4.20** | **4.20** | **4.50** | **1 to 5** |
| **CS6 Perspective** | **3.30** | **4.10** | **4.30** | **4.70** | **1 to 5** |
| **CS7 Bravery** | **4.10** | **4.50** | **4.10** | **4.00** | **1 to 5** |

Note: This note could be part of the table. For instance, n=2, p<.05.

**Figures**

When you have a chart, graph, photo, or drawing, you should set it off as a figure. Figures are similar in their format to tables, except that they have captions rather than titles, meaning that the caption comes below the figure. Also, the word figure and the number are in italics, and figure captions end in a period.



**Numbers, Equations, and Statistics**

Spell out any number that begins a sentence, title, or heading - or better still, reword it to place the number later in the text. In general, use Arabic numerals (10,11,12) when referring to whole numbers 10 and above, and spell out whole numbers below 10.

There are some exceptions to this rule:

* If small numbers are grouped with large numbers in a comparison, use numerals, e.g., 7, 8, 10, and 13 trials; but not when numbers are used for different purposes, e.g.,10 items on each of four surveys.
* Numbers in a measurement with units, e.g., 6 cm, 5-mg dose, 2%.
* Numbers that represent time, dates, ages, sample or population size, scores, or exact sums of money.
* Numbers that represent a specific item in a numbered series, e.g., Figure 5.
* When reporting statistics in the text, be sure to italicise statistical and mathematical variables, e.g., F test, t test, population size N, p = .03.

Use commonly accepted abbreviations for statistical symbols.

**Lists and Seriation**

The APA Style Manuals recommend that you list steps in a procedure or other itemised information as a numbered or bulleted list, you have only a few items to list, the approved mechanism is to letter them as options within a paragraph: (a) first option, (b) second option, and (c) third option.

Use commas to separate them unless they are long or include their own punctuation, in which case you should use semi-colons to separate them.

The punctuation before a list is a colon (:) and not a semi-colon (;). See Box 3.

If you do include a bulleted or numbered list, check for parallel construction, i.e., consistency of punctuation, style, indentation, and voice.

* Are all the entries sentences? Fragments?
* Do they all end in a period? Semi-colon? No punctuation?
* Are they all active verbs? Passive verbs? Gerunds?

**Box 32.3;**

**Example of Bulleted Items**

On the other hand, Allport (1950) described 'the mature religious

sentiment' in terms of the following attributes:

Differentiation: arriving at a multiplicity of religious sentiments (beliefs and expressions) through a reflective and even critical process.

Dynamism: the mature religious sentiment exhibits a willingness to break out of the comfort zone of magical thinking and self-justification.

Consistent morality: when intense religious sentiment is able to transform character, "producing moral zeal, engendering consistency upon men's purposes" (Allport, 1950, p.76).

Comprehensive: mature sentiment is ordered and coherent, infused with motive

Integral: related to being comprehensive, mature religious senti­ment expresses harmony that engenders freedom.

Fundamentally heuristic: "An heuristic belief is one that is held tentatively until it can be confirmed or until it helps us discover a more valid belief (Allport, 1950, p.81).

## **32. 2. Citations in Text**

When do I give reference to a source?

* Use 1 - when something is directly borrowed: Whenever you have borrowed an expression or a few lines or a concept from another authors) credit is offered to the original source. Be sure to properly cite the work of another, even if you have paraphrased it in your own words.
* Use 2 - when we perceive that the idea or an expression is something very specific to an author.
* Use 3 - when you want to provide evidence for your premise. When we write scientific arguments, we should not say anything that does not have evidence. The evidence could come from a set of original data, but often the evidence (particularly to build premises of the argument) also could be provided by a citation to a previously published material.
* Use 4 - Sometimes, a reference is given to direct the reader to a source for further reading.

*How to cite?*

APA Style requires that you cite the author and the year of the publication in text (See Box 3), and, if there is a direct quote, the mage number(s) are also included (See again Box 3). Below are some sentence fragments to illustrate the proper format.

***One author discussed directly in the sentence:*** *there is no need to* *include the title of the book or blah, blah, just the year is enough. Use of both* *names of the author is optional. When one name is used only the surname*

*In used. The surname appears last in the cover page of the book or the article.*

David White (2005) has pointed out to the importance of 'discernment as a core dimension of transformative youth ministry.

***One author referred to in the reference*** *rather than named in the sentence: Put the citation where it makes most sense. Remember, the sentence should make complete sense when read without what appears within brackets.*

Other authors have explored related concepts like "discernment" (White, 2005), "contemplation" (Yaconelli, 2006), and "spiritual caring" (Dunn, 2001) in the context of youth ministry.

***Two authors*** *and a reference that does not have a date, discussed directly in the sentence.*

Jurby and Clements (n.d.) have exposed the fraud...

***Two authors*** *and a reference without a date referred to in the reference; notice the use of ampersand (&) symbol and that the citation comes before the period for the sentence.*

The fraud was exposed through a series of web-logs (Jurby & Clements, n.d.).

*When* ***two sources from the same author*** *are used, if the year of publication is of different years, then they are treated as two independent sources. But if they are also published in the same year then 'a' or 'b' is added to distinguish the sources as follows:*

Historically, the Zanzibaris who have migrated to Oman have been the most successful merchants in the capital, yet are not accepted socially as being of Arab or Omani origin (Peterson, 2004a). Many citizens of Muscat speak South Arabian languages as their first language (Peterson, 2004b).

*The first reference to a source authored by* ***three authors.*** *Notice the use of comma (,) before the ampersand (&):*

*A* comprehensive assessment of the Gateway Theory has been provided by the so-called 'Rand Report' (Morral, McCaffrey, & Paddock, 2002). According to this report, though the relationship between the use of marijuana and other harder drugs cannot be ruled out, but there is no causal relationship.

*When multiple sources are listed as reference, the entries are separated by a semi-colon (;) and they are arranged in alphabetical order of the sur­name of the first authors:*

The mixed method approach would protect the present study from naive realism and anti-realism, and help it to remain within the framework of critical realism (Bhasker, 2008; McGrath, 2004; Sayer, 2000).

***Use of p. & pp,:*** *when direct quotes are used the page number should be included. Notice that small 'p' is used followed by period (,). In case the are many, 'pp' is used.*

The family socialises the individual into the system and provides him or her with a sense of security and belonging. "The family. regulates the person's system and orientation, which includes a strong belief in man's relation to nature and supernatural beings and important connections between the individual and his or her ancestors" (Nzelibe, 1986, pp.11-12).

*The first reference to a work with* ***more than two authors and less than six authors*** *should have all the names listed. Subsequent references can use "et al," Notice also the page number, included because of the direct quote.*

The results showed that children in this situation are at a "functional disadvantage" (Wigli, Jones, Stewart, Wilson, & Samuels, 2007, p. 22).

*The later reference to a work with* ***more than two and less than six authors*** *or the first reference to a work with six or more authors. The only lotion: If there are several articles with the same lead author in the same* year.

The disadvantage can affect children into adulthood (Wigli et aI, 2007).

*Organisations as authors: Groups with established and common abbreviations should be spelled out the first time with the abbreviation noted, and then later citations can use only the abbreviation. Notice* also *the letter after the year, indicating that there are multiple references for publications in 2008.*

(American Medical Association [AMA], 2008a). ………………………………………… 2008a)

(AMA a)

***When there is no author on a publication****, use quotes for articles chapters, and webpages; use italics for periodicals, books, brochures, and reports. In addition, when there are two or more citations, separate them h\t semi-colons and list them in alphabetical order.*

The newspapers covered the story in detail ("Bush Claims Victory," 2003; Seargent & Killian, 2003).

*Websites and Webpages: When citing a webpage that has an author'-' name, author and year are used as usual the year can be found at the hot torn of the page followed by © mark. In the References List the details are given.*

***When citing an entire website****, it is sufficient to give the address of* *the site in just the text.*

Kidspsych is a wonderful interactive website for children (http://www.kidspsych.org).

***When there is no author for a web page,*** *the title moves to the first position of the reference entry. Cite in text the first few words of the reference list entry (usually the title) and the year. Use double quotation marks around the title or abbreviated title.: ("New Child Vaccine," 2001). No URL should be used within the main text, this is included in the References List.*

## **32. 3. References List**

The rules for formatting a reference comprises of the single largest section of the APA Style Manuals, but most people need only three or four of the formats. We have included the most common ones below as a guide to get you started. Watch out for capitalisation, Punctuation, and spacing.

**General Guidelines**

* The title to the section is 'References List'. Avoid the use of any other phrase such as, 'Bibliography'; 'Works Cited';
* The entries are not grouped in Books, Articles, etc. All entries are listed in one.
* They are arranged according to the alphabetical order of the surname of the first author;
* When there are more than one entry by the same author(s) then those entries are arranged according the year of publication. The name of the author is repeated.
* Hanging indentation is used for all entries.
* The line-space between entries could be double or one and a half; the space within entries is normally single.
* Make sure that all entries in reference list have been actually cited in the text; and make sure that all sources cited in the main text have been included in the reference list.
* APA does not make provision for "as cited in". Always the original source is to be cited. For instance, you are using source A, and A is citing B. If you want to cite B, then you use B for that citation, and not A. You cannot cite A and say "as cited..."

***Reference for a journal article:***

Author(s) with initial(s). (year). Article title in sentence case. *The lame of the Journal in Title Case and Italics, the volume in italics* (and the sue if there is one), the page number or range. DOI (if there is one).

Note: If the journal article is available online then include either the digital object identifier (DOI) or the uniform resource locator (URL).

Collins, A. P., & Harlow, W. (2001). Does active learning really matter? *Journal of the Scholarship of Teaching, 10* (3), 11-22.

Collins, A. P. (2005). Building an active learning environment. *Online JournalofTeachingandLearnmg,5,lQ-l$.DOl:* 10.1234/5453556

Collins, A. P. (2007). Active learning techniques in reading education. *Preparing Children to Read,* 3. Retrieved from http:// www.aera.org/preparingchildren/

***Reference for a book:***

Author(s) with initial(s). (year). *The book title in sentence case anil italics,* the city of publication: the publisher. If the author is actually the editor, note that.

Collins, A. P., Bishop, K., & Harlow, W. (2001). Techniques for active learning (2nd ed.). New York: McGraw Hill.

Disher, K. P. (Ed.). (2003). *Building consensus.* New York: McGraw Hill.

***Reference for a chapter or section in a book:***

Author(s) with initial(s). (year). The chapter title in sentence case, The authors of the book, *The Book title in sentence case and italics* (page numbers). The city of publication: the publisher.

Bishop, K. (1988a). Dealing with a disruptive student. In B. W Johnson, K. Felts, & R. K. Newton (Eds.), *Classroom management techniques* (pp. 37-52). New York: McGraw Hill.

Notice that for the name of the author of the chapter the inili.il is included after the surname (because of the alphabetical listing), whereas for the editors initials are used first. Notice also the use of page numbers indicating the beginning and end of the cited chapter

***Website reference*** *(not a journal, book, or other standard publication):*

Shiffington Industries. (2009). *Reference manual for Shiffington accelerators.* Retrieved on 31/03/2009 from http://www.shiffingtoninc. com/manual .html.

***Webpages without Author***

New child vaccine gets funding boost. (2001). Retrieved March 21,2001, from http://news.ninemsn.com.au/health/story\_13178.asp

**Newspaper article without an author** would be cited in the text using the beginning of the title as though it were the author: (Doctors without Borders," 2010):

Doctors Without Borders provide aid in Haiti. (2010). *New York Times.* Retrieved on 10/03/2010 from http://www.shiffingtoninc. com/manual.html

*Conference paper:*

Dallas, J. (2009, March). *Using mathematics to make decisions.* Paper presented at the meeting of the American Mathematical I Society, Boston, MA.

***Government report:***

U.S. Department of Education, Office of Vocational and Adult Education. (2009). *Partnerships between community colleges and prisons providing workforce education and training to reduce recidivism.* Retrieved on 21/10/2007 from http://www2.ed.gov/about/offices/list/ovae/resource/index.html

***Unpublished doctoral dissertation:***

Dallas, J. (2009). *Using mathematics to make decisions* (Unpublished doctoral dissertation). Appalachian State University, Boone, NC.

**A Simplified Summary of APA Reference Style**

|  |  |  |  |
| --- | --- | --- | --- |
| **Case** | **In-text Reference** | **Reference List** | **Comments** |
| One Author | Sophisticated searching tech­niques are important in finding information (Berkman, 1994) OR Berkman (1994, p.25 claimed that | Berkman, R. I. (1994). *Find it fast: How to uncover expert information.* New York: Harper Perrenial. | Use of page number (p.) is compulsory in in-text when there is a verbatim quote. |
| Two Authors | It is futile to maintain that the sexes are in­terchangeable (Moir & Jessel, 1991) OR Moir and Jessel (1991) found stu­dents... | Moir, A., & Jessel, D. (1991). *Brain sex: the real difference between men and women.* London: Mandarin. | Always list the authors in the order they ap­pear in the publication. Note the use of &/'and' |
| Three, Four, Five Authors | (Sharp, Aarons, Wit­tenberg, & Gittens, 2007} | Sharp et al., 2007 | Note the difference between in-text and reference list! Note the use of comma (,) before the & |

|  |  |  |  |
| --- | --- | --- | --- |
| More than six authors | **it was argued that.**  (Johnson etal.,  2005)  OR  Johnson etal.  (2005) talks about, | Johnson, L., et al. (2005). *How far Is far?* London: McMillan. |  |
| Dictionary without author's name | Management is defined as *(CCH Macquarie Diction­ary,* 1993) OR  CCH *Macquarie Dictionary* (1993) defines... | *The CCH Macquarie dictionary of busi­ness.* (1993). North Ryde, NSW: CCH Australia. | Cite in the text the first few words of the title and the year. |
| Dictionary or Encyclopedia with author's name | (Wolman, 1989) | Wolman, B.B. (1989). *Dictionary of*  *behavioral science* (2nd ed.}. San Diego: Academic Press. |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Multiple works by the same author, | ...geology of Queensland's na­tional parks (Will- | Willmott, W.F . (2004). *Rocks and land­scapes of the national parks of Southern Queensland.* Brisbane: | | In reference list, order chronologically from earliest in the refer- | |
|  | mott, 2004, 2006). | Geological Society of Australia, | | ence list | |
|  |  | Queensland Division. | |  | |
|  |  | Willmott, W.F. (2006). *Rocks and land-* | |  | |
|  |  | *scapes of the national parks of* | |  | |
|  |  | *Central Queensland.* Brisbane: | |  | |
|  |  | Geological Society of Australia, | |  | |
|  |  | Queensland Division. | |  | |
| Multiple works by the same author | (Dawkins, 1996a, 1996b) | Dawkins, R. (1996a). *Climbing Mount Improbable.* London: Viking. | | Order alphabetically by title in the Reference | |
| published in the |  | Dawkins, R. (1996b). *River Out of Eden.* | | list. | |
| same year |  | London: Phoenix. | |  | |
| Book by an organisation or institution | (Queensland Health, 2002) Queensland Health | Queensland Health. (2002). *Best prac­tice guidelines for the manage­ment of type 1 diabetes in children* | |  | |
|  | (2002) recommends | *and adolescents.* Brisbane, Qld.: | |  | |
|  | that.... | Queensland Health. | |  | |
| Different Editions | (DeHart, Alan & | DeHart, G. B., Alan Sroufe, L, & Cooper, | | The edition statement | |
|  | Cooper, 1 995) | R. G. (1995). *Child development:* | | is placed after the title | |
|  | DeHart, Alan & | *Its nature and course* (4th ed.). | | of the work. Not neeed . | |
|  | Cooper (1995) state | Boston: McGraw-Hill. | | fora first edition. | |
|  | the idea that... |  | |  | |
| Electronic book -entire book | ...globalisation concerns (Pettinger, 2002). | Pettinger, R. (2002). *Global organisa­tions.* Oxford: Capston Publishing. Available from NetLibrary data­base. | | When the link leads to how to access material' rather than material itself, use "Available frnm". |
| Translation of a book | (Ylinen, 2008) | Ylinen, J. (2008). *Stretching therapy: for sport and manual therapies* (J. Nurmennierni, Trans.). Edinburgh: Churchill Livingstone. | | Start with the author. |
| Chapter in an edited book | (Baker & Lightfoot, 1993) | Baker, F. M., & Lightfoot, O. B. (1993). Psychiatric care of ethnic elders. In A. C. Gaw (Ed.), *Culture, eth­nicity, and mental illness* (pp. 517-552). Washington DC: American Psychiatric Press. | | Start with the chapter authors, NOT the edi­tors of the book |
| Journal article -one author | (Mellers, 2000) or Mellers (2000) thought that.... | Mellers, B. A. (2000). Choice and the relative pleasure of consequenc­es. *Psychological Bulletin, 50(2),* 49-52. | |  |
| Journal article -two authors | (Schafer & Kang, 2008) | Schafer, J.L. & Kang, J. (2008). Aver­age causal effects from nonrand-omized studies: A practical guide and simulated example. *Psycho­logical Methods,* 73,279-313. | | Note: issue number is  also not available. |
| Journal article - three to five authors | (Skenderian, Siegel, Crano, Alvaro, & Lac, 2008) | Skenderian, J, Siegel, J. T., Crano, W.D., Alvaro, E.E. & Lac, A. (2008). Expectancy change and adolescents' intentions to use marijuana. *Psychology of Addic­tive Behaviors, 22,* 563-569. |  | |
| Journal article -six and more authors | (Galeaetal.,2008) < | Galea, L.A., et al. (2008). Endocrine regulation of cognition and neuro-plasticity: Our pursuit to unveil the complex interaction between hor­mones, the brain, and behaviour. *Canadian Journal of Experimental Psychology/Revue canadienne de psychologie experimental, 62,* 247-260. | Similar to a book in the author selection. | |
| Journal article - in  press | (Williams & Seattle, in press) | Williams, S. & Beattie, H. J. (in press). Problem based learning in the clinical setting - a systematic re­view. *Nurse Education Today.* | In press -this means that the article has been accepted for pub­lication but not yet out. | |
| Electronic article -with DOI number | (Fletcher & Wagstaff, 2009)  Fletcher and Wag-staff argue that"..." (2009, p.428) | Fletcher, David & Wagstaff, Christopher R. D. (2009). Organizational psy­chology in elite sport: Its emer­gence, application and future. *Psychology of Sport and Exercise, 10(4),* 427-434. doi:10.1016/j. psychsport.2009.03.009. |  | |
| Published confer­ence paper | (Bohrer, Zielke &Freiburg, 1995) | Bohrer, S., Zielke, T., & Freiburg, V. (1995). Integrated obstacle de­tection framework for intelligent cruise control on motorways. *Pa­per presented at IEEE Intelligent Vehicles Symposium.* Detroit, Ml: Piscataway. |  | |
| Unpublished con­ference paper | (Bowden & Fairley, 1996) | Bowden, F.J. & Fairley, C.K. (1996, June). *Endemic STDs in the Northern Territory: estimations of effective rates of partner change.* Paper presented at the scientific meeting of the Royal Australian College of Physicians, Darwin. |  | |
| Newspaper or Magazine article with author | (Cook, 2002) | Cook, D. (2002, January 28). All in the mind. *The Age,* p. 8. |  | |
| Newspaper article without author | (Meeting the needs, 2001) | Meeting the needs of counsellors.  (2001, May 5). *The Courier Mail, p. 22.* |  | |
| Government report | (Queensland Health, 2005) | Queensland Health. (2005). *Health Sys­tems Review Final Report.* Bris­bane: Queensland Government. |  | |
| Thesis- retrieved from institutional or personal web­site | (Axford, 2007) | Axford, J.C. (2007). ***What constitutes*** *success in Pacific island commu­nity conserved areas?* (Doctoral dissertation, University of Queens­land, 2007). Retrieved from http:// espace.library.uq.edu.au/view/ UQ: 158747 |  | |
| Web page - with author | (Atherton, 2005) | Atherton, J. (2005). *Behaviour Modifica­tion.* Retrieved February 5, 2009, from http://www.learningandt.each-ing.info/learning/ behaviour\_mod.  htm |  | |
| Web page - no author | (Behaviour modifica­tion, 2007) | *Behaviour modification.* (2007). Re­trieved February 5, 2009, from http ://www. educational-psycholo­gist.org.uk/behaviour.html |  | |
| Indirect citation or secondary source | Miller (cited in Agrios 2005) found ... ... it was found (Miller, cited in Ag­rios 2005). | Agrios, G.N. (2005). *Plant pathology* (5th ed.) Burlington, Massachu­setts: Elsevier Academic Press, sophism |  | |

# **GLOSSARY OF TERMS**

**A**

**analysis** A process of working with the data to describe, discuss, interpret, evaluate and explain the data in terms of the research questions or hypothesis of the research project

**association** The belief that there is a relationship between two concepts (variables), but not necessarily that the relationship is causal.

**axial coding** In Grounded Theory data analysis, this is the second stage of coding data, and involves relating codes to each other.

**B**

**bivariate analysis** The analysis of two variables together.

**C**

**case study** The study of a single entity, often a person, an organisation, a situation or a country, wherein the subject is explored in detail and great depth.

causal **relationship** The assertion that a change in 'A' causes a change in 'B'.

**central tendency** A statistical measure which summarises the data relating to one variable in one value, such as the mean, median or mode.

**chi-squared** A test that can be used to assess whether the difference between the mean values of two samples is statistically

significant.

**cluster sample** A sample consisting of cases selected because of their proximity to one another. To justify such a sampling procedure, usually a cluster is internally heterogeneous (within the cluster) and externally homogeneous (between clusters).

**coding** The process of 'marking' or identifying data for later analysis.

**cohort studies** A type of longitudinal study which looks at a group of people of the same age and then gathers data about them at set points throughout their lives.

**constructivism** (Social constructivism or constructionism) An ontological position which asserts that the social phenomena mak­ing up our social world are only real in the sense that they are con­structed ideas which are continually being reviewed and reworked by those involved in them through social interaction and reflection

**content analysis** A technique for examining the categories that the data comprise and condensing them into fewer numbers so that they are easier to understand.

**control group** In an experimental research design, this is a group of people or materials that are the same as the experimental group in every way except the aspect of manipulation or change. Experimental group experiences the manipulation or interventionthe control group does not. At the end of the experiment the outcome is compared in both groups.

**Correlational study** examines the association between two variables to see if the variation in one variable is accompanied by variation in the other.

**correlation coefficient** A statistic that provides a measure of strength and direction of a relationship between two scale

**covert methods** Methods of investigation in which are not aware that they are part of a research project, or are perhaps being observed in secret.

**Critical realism** An epistemological position which assess that the social world has a reality that is separate from the social actors involved in it, however, that cannot be known independently of the observer. In terms of research method, it encourages mixed method: quantitative data that attempts to measure the world objectively, and qualitative data that focuses on the experience and of subjects.

**cross-sectional research designs** This research design includes' more than one case, collects data at one particular time, and includes within its research participants groups of people or cases that can be compared.

**cross-tabulation** Presentation of data from two variables in one table, enabling the researcher to identify interesting similarities and differences within the data. Chi-Square will test if the differences are significant or not.

**D**

**data** A collection of facts (or other information, such as opinions or values) which can be analyzed and from which conclusions can be drawn.

**data saturation** The idea that that there are ways in which the researcher can be sure that 'enough' research has been done.

**discourse** Text, either spoken or written, in any medium. It pertains to the way language is used in a given context by individuals and groups.

**discourse analysis** A language-based or linguistic method of qualitative analysis, in order to answer the question: what can we conclude about the identity of individuals or groups from their discourse.

**dissemination** The process of spreading the news of research findings so that they become known to a wider audience.

**distribution** An arrangement of the values of a variable showing their observed frequency of occurrence.

**documents** Written records about people and things that are generated through the process of living. This includes things like film, audio tape or video, but excludes such things as oral histories.

**E**

**electronic questionnaire** A questionnaire that is designed by the researcher, and completed by the participant, via computer-mediated communication (CMC)

**epistemology** The theory of knowledge and how we know things.

**ethics** Ethics can be thought of as a set of rules by which individuals and societies maintain moral standards in their lives.

**ethnography** A research strategy in which the researcher spends time (sometimes a number of years) immersed within the research context, seeing and hearing the data at first hand.

**experimental group** In a research design, the group of people or materials that are manipulated or changed in some way. (See control group).

**experimental research design** This type of research assumes that the material or cases that are being studied can be manipulated by the researcher in some way that the impact of the independent variable on dependent variable can be measured. This way, causal relationships can be established.

**explanatory research** Research that aims to explain why people experience or understand a social phenomenon in a particular way. They aim to establish causal relationship, in contrast to exploratory studies that only describe **what** is happening in the phenomenon.

**exploratory research** see explanatory research.

**F**

**focus group discussion** A data collection method that usually brings together a group of between 5 and 13 people who have something in common, which is connected to the research topic, to take part in a discussion on that topic, which is facilitated by the researcher.

**frequency** The number of times that each answer has been given, or that a particular outcome occurs.

**G**

**generalisability** A measure of research quality in which the researcher asks 'How far am I able to claim that the results or findings from my research are true for or relevant to the wider population or a different context?' (also known as transfer ability).

**Grounded Theory** A systematic research approach in which theory is developed *-* or generated - from data. It flows from the social constructivist approach.

**H**

**hypothesis** A proposal or statement that is intended to explain observations or facts; it can be thought of as an 'informed guess' about the social world that, if true, would explain the phenomenon being researched.

**I**

**inductive approach** A data collection and analysis approach that works with the data in such a way that general conclusions are drawn from the data (drawn from particular cases or participants).

**informant interviews** A type of interview in which the participant is in control of the interview, and is able to tell their own story, in their own way.

**informed consent** Making sure that the people who are going to take part in the research understand what they are consenting to participate in.

**interpretivism** An epistemological position that prioritises people's subjective interpretations and understandings of social phenomena and their own actions.

**interpretivist approach** This usually means that qualitative data is collected, with a focus on how people interpret the social world and social phenomena and enabling different perspectives to be explored.

**interview** A data collection method based around a conversation between two or more people. Interviews usually facilitate direct communication between two people, either face to face or at a distance via telephone or the internet and enable the interviewer to elicit information, feelings and opinions from the interviewee using questions and interactive dialogue.

**interview guide** An agenda for an interview with additional notes and features to aid the researcher.

**L**

**longitudinal study** A research design that enables the researcher to look at the same people or situations at key points over a period of time and to consider how the changes over time have affected different groups or individuals.

M

**macro theories** Theories that attempt to cover all aspects of the social world in general terms (also known as grand theories or meta-theories).

**mean** A statistical average calculated by totaling all the values and dividing by the number of cases.

**median** A statistical average calculated by arranging all the values in a sample in numerical order, then noting the middle value of the distribution.

**memo** A way of recording, thinking about and analysing data, or flagging a piece of data for later investigation.

**meso theories or Middle-level theories** relating to social phenomena usually found, such as organisations, institutions, community and family.

**micro theories** Local theory relating to a specific area, group of people or aspect of the social world.

**mixed methods** Methods that combine qualitative and quantitative methods in a way that is best for a specific research project.

**mode** A statistical average calculated by noting the most common value in the distribution.

**multi-coded question** A question that asks for more than one answer, and to which more than one variable is attached.

**multivariate analysis** The analysis of three or more variables together. Bivariate analysis involves only two variables.

**N**

**narrative** The depiction of a sequence of past events as they appear in present time to the narrator, after they have been processed, analysed and constructed into stories.

**node** The term used in the NVivo program to refer to codes.

**non-response** This occurs wherever an invited participant declines to be involved in a research project, perhaps because they refuse, are ill or are inappropriate.

**normal distribution** Data that is distributed symmetrically around the mean point in a 'bell shape'.

**O**

**objectivism** An ontological position which asserts that the social phenomena that make up our social world have an existence of their own, apart from and independent of the social actors (humans) who are involved.

**observation** (1) The collection of data through the use of human senses. (2) The act of watching social phenomena in the real world and recording events as they happen. In research, observation is usu­ally divided into *participant observation and simple observation.*

**online social research** The computer-mediated collection of data and typically adapts traditional data collection methods, for example, questionnaires, interviews, focus groups, etc., for use in an online virtual environment. Open coding In Grounded Theory data analysis, this is the first stage of coding data, identifying and describing research phenomena, and assigning them appropriate names.

**open questions** Questions that allow the respondent to answer the question in their own way.

**operational definitions** Definitions that the researcher can work , with and adapt to help to focus the research questions and to decide what data to gather to address those questions.

**overt methods** Open methods of investigation in which participants are aware that they are part of your research.

**P**

**paradigm** A cluster of beliefs and dictates that for scientists in a particular discipline, influence what should be studied, how research should be done, how results should be interpreted and so on.

**participant observation** A data collection method in which the researcher/observer achieves intimate knowledge of the group of people who are the subjects of the research, in the group's natural setting.

**peer review** In academic settings, the process by which articles and papers are reviewed and selected for publication.

**pilot-test** A trial run or an opportunity to try out a data collection method on a small sample of cases before the main research data gathering takes place; question wording, research participant understanding and data collection procedures can all be tried out and amended if necessary before the main research stage.

**plagiarism** Presenting someone else's work as of it was your own; copying; failing to reference or otherwise attribute the origin.

**population** In statistical terms, population refers to the total number of cases that can be included as research subjects.

**positivism** An epistemological position which asserts that knowledge of a social phenomenon is based on what can be observed and recorded rather than subjective understandings.

**positivist approach** This usually means that quantitative data is collected; aspects of the social world, social phenomena, are measured; causal relationships between different aspects of the social world are sought; and large data sets and statistical analysis are often used.

**primary data** The data that a researcher gathers specifically for their own research.

**probability sample** A sample that can be shown to be highly representative of the whole population - or all the potential cases -in terms of relevant criteria. The methods of sampling here involve a process of ensuring that all cases of the population have equal opportunity to enter into the sample.

**prospective longitudinal studies** Research studies that arc initially designed to be longitudinal.

**purposive sample** A sample of selected cases that will best enable, the researcher to explore the research questions in depth.

**Q**

**qualitative research methods** Methods that are primarily concerned with stories and accounts including subjective understandings, feelings, opinions and beliefs.

**quantitative research methods** Methods that are primarily concerned with gathering and working with data that is structured and can be represented numerically.

**quartile** One-quarter part of a sample or data set.

**quasi-experiment** Literally, 'almost the same as an experiment' but does not involve manipulation of the independent variable, but involves the comparison of the experimental group (those who were naturally exposed to the condition) and control group (those who, were not exposed).

**questionnaire** (1) A set of questions each with a range of answers; (2) a format which enables standardised, relatively structured, data to be gathered about each of a (usually) large number of cases.

**quota sampling** A sampling technique that selects a certain number, or quota, of cases, on the basis of their matching a number of criteria.

**R**

**random controlled study (also random controlled trials) A**

research design that divides the research participants into broad groups relating to age, gender or ethnicity or other characteristics that are relevant to the research topic, and then randomly allocates people to control and experimental groups.

**random sample** A sample selected from a population where every case has an equal chance of being included in the sample and the composition of the sample cannot be predicted.

.

raw data Data that has not been analysed in any way, but is

presented in the form it was collected in.

**realism** (1) An ontological position which asserts that the social world has a reality that is separate from the social actors involved in it, that can be known through the senses as well as the effects of 'hidden' structures and mechanisms. (2) An epistemological approach that asserts that knowledge of a social phenomenon is based on both what can be observed and recorded and 'hidden' structures and mechanisms whose effects can be observed.

**reflexive data** The data produced by individuals themselves as they think about what they brought to the study as an individual, what they are doing, experiencing and feeling in understanding their social reality.

**reliability** A measure of research quality, meaning that another researcher would expect to obtain the same findings if they carried out the research in the same way, or the original researcher would expect to obtain the same findings if they tried again in the same way.

**representative sample** A sample that has been selected in order to be representative of a wider population.

**research proposal** A document that outlines what a research project is about, how it will be undertaken, why it is worthwhile, how long it will take, and why it should be funded.

**research question** The initial enquiry from which a research project develops.

**research instrument** Something used to collect data, e.g. a questionnaire, the researcher her/himself or an interview schedule.

**S**

**sampling error** The likely variation of the sample mean from the population mean.

**sampling frame** A list of all the members of a population from which a sample may be drawn.

scattergram A graph that plots two variables to show visually whether and how the variables may be related to each other.

**secondary data** The data that a researcher uses which has already been produced by others.

**selective coding** In Grounded Theory data analysis, this is the third and final stage of coding data, and is the process of choosing a central or 'core' category and then relating all the other codes, themes and categories to it.

**semi-structured** Describes data, or a data collection method (such as an interview or questionnaire), in which questions and answers may vary in wording and length; answers to questions are often in the respondent's own words.

**snowball sampling** A sampling technique where members of an initial sample are asked to identify others with the same characteristics as them, who the researcher then contacts.

**social phenomenon** Anything that influences or is influenced by human beings who interact with and are responsive to each other.

**social world** The setting or cultural surroundings in which social research takes place.

**standard deviation** A statistical measure of how values or cases are distributed around the mean value or case.

**statistical sampling** The process of selecting a probability sample.

**statistical significance** A measure of the probability that the relationships found in a sample will also be found in the wider population.

**statistics** Data that is structured and can be counted or is already expressed in numerical terms.

**stratification** A method of organising a population in order to improve the representativeness of a sample.

**stratified sample** A sample that is selected to ensure that certain categories and groups of people and cases are included, proportionate to their presence in the population.

**structured** Describes data, or a data collection method (such as an interview or questionnaire), in which the questions are the same for each participant, and typically there is a common set of answers for each question.

**subsidiary research questions** These are questions that help you to specify more precisely the areas of the research topic that you will focus on.

**T**

**thematic analysis** A process of working with raw data to identify and interpret key ideas or themes.

**theoretical framework** The ideas and approaches to viewing and gathering knowledge, and which provide the basic ways c addressing a topic.

**theoretical memoing** In Grounded Theory data analysis, ‘the theorising write-up of ideas about substantive codes and the, theoretically coded relationships as they emerge during coding; collecting and analysing data, and during memoing' (Glaser).

**theoretical sampling** A sampling technique in which the initial cases are usually selected on a relatively unstructured basis: as 'theory’ begins to emerge from the initial data, further cases are selected ; explore and test the emerging theory; this continues until there is no new theory emerging and theoretical 'saturation' is reached.

**theory** A set of ideas or related concepts that can be used , explain and understand an event, situation, social phenomena.

**topic guide** A set of questions, key points or prompts to 1 included in a focus group or interview that helps the facilitator to remember the issues/questions to introduce; suggests ways : approaching topics and phrasing questions; reminds the facilitator to probe and follow up comments; includes an introduction and way of ending; if you are holding more than one focus group or two or more facilitators are involved ensures that the same topics are covered in each group.

**transferability** A measure of research quality in which t, researcher asks 'How far am I able to claim that the results or findings from my research are true for or relevant to the wider population q different context?' (also known as generalisability).

**transparent** In a research context, this means that the research process and the decisions made by the researcher are recorded and available to others for scrutiny.

**triangulation** A measure of research quality, meaning that if different types of data are collected to address the same research question, each set of data can be used to check the findings from the others.

**U**

**unit** The individual respondent or subject about whom a researcher collects data, for example countries, universities, families or individuals.

**unstructured** Describes data, or a data collection method (such as an interview or questionnaire), in which questions and answers do not follow a guide or template.

**V**

**validity** A measure of research quality, meaning that the data we are planning to gather and work with to address our research questions is a close representation of the aspect of social reality we are studying. That is, the finding of the research is close to reality.

**value statements** Statements, usually from an individual, that are indications of each person's opinion where they are using their own judgment and criteria.

**variable** An attribute or characteristic of cases (for example, in­dividuals, organisations, objects or situations) which can vary from case to case, which is examined or measured in a research.

Heavily adapted from: hrtp://wps.pearsoned.co.uk/ema\_uk\_\_he\_

matthews\_resmeth/153/39239/10045193,cw/-/10045194/index.html

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# **APPENDIX A**

**Research Proposal**

**Association between Perceived Maternal Parenting Style and Self-Esteem among Adolescents in Secondary School**

*Jenny Prince Matthew*

**Abstract**

Maternal parenting styles and its impact on adolescent's develop­mental stages has been an area of interest in the field of psychology. This is because the parents, especially the mother plays an impor­tant role to enhance adolescent's potential. This can be explored through the concept of effective parenting styles. Undeniably parenting styles practiced by both the parents decide in the development of adolescent's thoughts, feelings and behaviours. While many studies have explored the relationship between parenting style in general and self-concept, no known study has been carried out in Kenya examining the influence of the mother. Therefore, this study is undertaken to identify the perceived maternal parenting style and self-esteem among students in sampled secondary schools in Nairobi. The present study will use the quantitative research approach and the data would be collected from 100 students focusing on the relationship between perceived maternal parenting style and self-esteem. The perceived maternal parenting styles will be measured by the 'Parental Authority Questionnaire' (FAQ) instrument while the self-esteem will be measured by the 'Rosenberg Self-Esteem Inventory' (RSES). The data will be analysed by carrying out a correlational test using Pearson's r. The findings will help in mentoring mothers in their parenting task.

**Background and Rationale**

Adolescence is the transition period between childhood and adulthood. It is a period of multiple transition involving education, training, employment, unemployment and other developmental issues. Over the years, researchers have shown that parenting styles have strong impact on children's and adolescents' development. This is because it is within the family environment that individuals first acquire values, beliefs, attitudes, standards and behaviours considered to be culturally appropriate (Berns 2009). Baumrind (1991) conducted studies and identified some important dimensions of parenting which include disciplinary strategies, warmth and support, communication style and expectations of obedience and control. Based on these, four parenting style- authoritative, authoritarian, permissive and neglectful were suggested by Baumrind (1991).

Authoritarian parenting style is characterised by high expectations of conformity and compliance to parental rules and directions. As stated by Baumrind (1996), children who are treated with authoritarian parenting styles tend to be more anxious, less socialising and less satisfied. Authoritative parenting styles are child centred approach of compliance to parental rules and directions while allowing an open communication about rules and behaviours between the parent and child. Authoritative parenting style encourages oral communication and involve children to carry out responsibilities based on the needs and abilities of their family members (Maccoby and Martin, 1983). Permissive style parenting is a loose style in which parents make less demands or control on their children and have little behavioral expectations from their children (Baumrind, 1996). Lastly, Neglectful parenting style in which parents are low in warmth and control. They are generally not involved in their child's life and are disengaged, undemanding and do not set limits. They provide everything the child needs for survival with little to no engagement (Brown & Lengar, 2008).

The teenage years are generally stressful for both parents and teens. Teenagers undergo a number of adjustments including biosocial, cognitive and psychosocial changes on their *way* to being adults. One important as­pect of adolescent period that is greatly influenced by parenting style is self-esteem. Self-esteem is important because of its role in healthy human devel­opment and is defined as a person's overall evaluation of, attitude toward, her or himself (Leary & MacDonald, 2003). Individuals with high self-es­teem usually have high self-confidence, resilient, are able to solve problems and are satisfied with oneself (Ross & Zeller, 2006). Conversely, individuals with low level of self-esteem are generally more vulnerable, anxious, lonely and depressed when faced with problems (Ross & Zeller, 2006).

Paulson, Hill, and Holmbeck (1991) found that children perceived greater closeness with their mothers than with their fathers. There is no universally best parenting styles as they differ person to person according to the culture, environment and individual personalities. Prior research concerning the relationship between parenting style and adolescent self-esteem has revealed that adolescents who receive high levels of warmth and acceptance from their parents demonstrate elevated levels of self-es­teem, whereas adolescents who experience less-accepting parenting practices show low self-competence, poor self-perception and low self-esteem (Milevsky, Schlechter, Netter, & Keehn, 2007).

Some of the studies also exhibit variations as to which parenting styles lead to highest levels of self-esteem. Martinez and Garcia (2008) found that children of indulgent parents had the highest level of self-esteem while those of authoritarian parents had the lowest levels of self-esteem. Garcia and Gracia (2009) found that both the children of indulgent and authoritative parents had the highest levels of self-esteem. These variations in results make it unclear as to which parenting style could be labelled as most successful in self-esteem development.

Most parents aim for the well-being of their children but children may not perceive parenting in the same way as parents believe they do. Chil­dren's perception may therefore be more relevant to their well-being, there­fore it would be of importance to focus more precisely on children's per­ceptions of parenting styles. Mothers are traditionally thought to have a greater influence on adolescent perceptions of self (Baumrind, 1991a). Arid yet no known study has explored the relationship between maternal par­enting style and children's self-esteem among African population. Hence this present study is designed to determine the relationship between ado­lescent's self-esteem and their perception of mothers as being authoritative, authoritarian and permissive. For the purpose of this research 'mother' is defined as the one who is either the adolescent's biological mother or held taken on mothering role for that individual since childhood. The focus is on *perceived* maternal parenting style because it is not possible to measure parenting style as such, but the participants themselves will report on the maternal parenting style as they perceive it.

**Research Question**

The present study was guided by the following research question:

Is there an association between perceived maternal parenting style and self-esteem among adolescents in Secondary schools?

**Method**

Research design. The present study will use a quantitative design in the form of questionnaires to collect numerical data which would be thereafter analysed using SPSS. Quantitative method are useful for both precise description and for comparison. There are well-developed procedures for the analysis of quantitative data and using numbers enables greater precision in measurement. There is a well-developed theory of reliability and validity ., to assess measurement errors; this enables researchers to know how much 1 confidence to place in their measures. The analysis of the data is facilitated with well-established statistical methods enabling communication *of-.* the findings. Quantitative measurements facilitate comparison allowing researchers to get reactions of specific stimuli from many people and to compare responses across individuals (Barkeir, Pistang, & Elliot 2002).

Participants. The present study will be carried out in the schools in Nai­robi area. In this research 100 participants will take part and shall be picked using purposive sampling. This method signifies a series of strategic choices about with whom, where, and how one does one's research (Palys, 2008). This method has been specifically used because it is a deliberate choice of the researcher to sample the adolescents in specific schools.

Instruments. A single survey questionnaire would be used as the in­strument to obtain information from the study participants. The question­naire consisted of three sections (See Appendix 2). The first four items had demographic variables. The second part included the parental authority questionnaire followed by the Rosenberg self-esteem scale.

*Demographics.* The first part of the questionnaire is intended to collect participants' demographic characteristics or background information such as age, gender, mother's age and domicile.

*Parental Authority Questionnaire* (PAQ). Perceived maternal parenting style will be assessed with the Parental Authority Questionnaire (PAQ), which is designed to measure Baumrind's parenting prototypes (Buri, 1991). It consists of 30 items per parent, 10 statements for each of the different styles of parenting in a five point Likert format ranging from strongly agree to strongly disagree where 1= strongly disagree to 5= strongly agree. The Parental Authority Questionnaire is most widely used for assessing adolescents' perception of parenting styles (authoritative, authoritarian, and permissive) and in this study the form for mother is used. Buri (1991) administered the PAQ to college students in an introductory psychology class at the beginning of the term and two weeks later to the same students. He reported test-retest reliabilities for the two week interval of scores on the subscales as follows: .81 for mother's permissiveness, .86 for mother's authoritarianism, .78 for mother's authoritativeness. In a study on perceived parenting styles as correlates of self-esteem among adolescents (Aihie, 2016) the reliability of the instrument was established using the test-retest method with an interval of four weeks and the Pearson Product Moment Correlation Coefficient calculated was r = 0.79. The scale has been used on a sample group, consisting of 384 adolescent girls in Iran (Khoynezhad,Rajaei & Mohebe-Raad, 2008) and the Persian version of this questionnaire

was reported as to be valid and reliable. Cronbach's alpha coefficient for authority, authoritarian, and permissive dimensions was reported 0.6, 0.83, and 0.61, respectively and the total alpha coefficient was 0.81.

*Rosenberg Self-esteem Scale (RSE).* The Rosenberg Self-Esteem Scale, is widely used self-report instrument for evaluating individual self-esteem. It is a 10-item scale that measures global self-worth by measuring both posi­tive and negative feelings about the self. The scale is believed to be undimensional. All items are answered using a 4-point Likert scale format rang­ing from 1 to 4, where 1= strongly agree to 4= strongly disagree. Items 2, 5, 6, 8, 9 are reverse scored hence increasing the validity of the scale. Bringle, Phillips & Hudson (2004) tested the Rosenberg self-esteem scale for tem­poral consistency and it was found to have good internal reliability results. The scale generally has high reliability: test-retest correlations are typically in the range of .82 to .88, and Cronbach's alpha for various samples are in the range of .77 to .88 (Blascovich and Tomaka, 1993 & Rosenberg, 1986).

*Data Collection Procedure.* The researcher will obtain permission from the school heads (the head teacher/ principal) to administer the question­naire from the student participant. After obtaining the consent from the ad­ministration, the participants will be given a brief explanation about the aims of the study. Participants will be given thirty minutes to complete the questionnaires by recalling parenting styles as they pertain to their mother (or the maternal figure that is significant in their life, such as a step mother or care giver).

Ethical issues of the data collection will be handled along the Tangaza directives of research ethical issues. Interviewee's are made aware of the informed consent (Appendix), freedom to withdraw, deception, protec­tion from physical and psychological harm, confidentiality, anonymity and academic integrity. Academic integrity reveals transparency, honesty and commitment at every stage of research work avoiding unethical practices, plagiarism and misconduct in research.

*Data Analysis.* This study will employ a correlational analysis, and ac­cording to Barker et al. (2002) correlational studies may use simple statisti­cal measures of association using Pearson's r. Correlational studies aim to examine the relationship between two or more variables: in technical lan­guage, to see whether they co-vary (Barker et al., 2002).

**Work-plan**

The data collection will be entirely dependent on the availability and time schedule provided by the school administrations according to their. J will to participate. Extra resources are not required to complete this re­search study.

**Impact, benefits and dissemination**

The results of this study will have profound implications, in conjunction with reports from previous studies on the effect of parenting styles for coun­selling adolescents and parents. Parents should be made to understand how their parenting styles affect their children and also encouraged to adopt a universally beneficial style to foster positive self-esteem and improve the mental health status of their adolescents'.The findings could be used to mentor parents in their role in contributing to the self-esteem of their child.

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# **Appendix 1: Consent Form**

## **Tangaza University College-CUEA**

**Participant's Consent Form**

Title of the project: Association between Perceived Maternal Parenting Styles and Self-Esteem among Adolescents

* This study is being conducted by an individual student of research methods class at Tangaza University College.
* It has been approved by the lecturer (contact: iysma@tangaza.org).
* The study involves no known risks to participants and contains no deception.
* The task requires the participant to answer a series of questions to examine the perceived maternal parenting style and self-esteem among adolescents.
* All responses will be treated as strictly confidential. No participant's results will be presented individually but only in aggregate form.
* Participation in this study is voluntary and there will be no monetary compensation. A refusal to take part will not lead to an individual being penalized in any way, and all participants have the right to withdraw themselves at any time.

Name of the researcher: Jenny Prince Mathew

Position of the researcher: MA Student

Email Address and the telephone number of the researcher: jennypmatthew27@gmail.com phone number +254722 457038

Signed by the researcher. …………………………

Date..........................................................................

Statement to be signed by the participant:

* I confirm that the organiser has explained fully the nature of the pro­ject and the range of activities which I will be asked to undertake and that I have received an information sheet. I confirm that I have had adequate opportunity to ask questions about this project.
* I understand that my participation is voluntary and that I may withdraw at any time during the project, without having to give a reason.
* I agree to take part in this study.

Signed by the participant…………………………..

Date..........................................................................

# **Appendix 2: Students Questionnaire**

## **Instructions**

Please answer all the questions honestly and exhaustively. All the information provided will be used strictly for academic/research purpose. All the information provided will be treated with the utmost confidentiality.

**Section A: Some personal details**

Please give the appropriate information about yourself by ticking or filling where applicable.

1. Your age: 2. Your Gender (M/F):

3. Mother's Age: 4. Where have you lived most of your life:

Village..............................................

Town.................................................

Nairobi city………………………..

For each of the following statements, circle the number that best describes how that statement applies to you and your mother. Try to read and think about each statement as it applies to you and your mother during your years of growing up at home.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 5 | While I was growing up my mother felt that in a well run home and the children should have their way in the family as often as the parents do. | 1  Strongly disagree | 2  disagree | 3  neither  agree or  disagree | 4  agree | 5  Strongly agree |
| 6 | Even if her children didn’t agree with her, my mother felt that I was for our own good if we were forced to conform to what she thought was right. | 1  Strongly disagree | 2  disagree | 3  neither  agree or  disagree | 4  agree | 5  Strongly agree |
| 7 | Whenever my mother told me to do something as I was growing up, she expected me to do it immediately without asking any questions | 1  Strongly disagree | 2  disagree | 3  neither  agree or  disagree | 4  agree | 5  Strongly agree |
| 8 | As I was growing up , once family policy had been established , my mother discussed the reasoning behind the policy with children in the family. | 1  Strongly disagree | 2  disagree | 3  neither  agree or  disagree | 4  agree | 5  Strongly agree |
| 9 | My mother has always encouraged verbal give and take whenever I have felt that my family rules and restrictions were unreasonable. | 1  Strongly disagree | 2  disagree | 3  neither  agree or  disagree | 4  agree | 5  Strongly agree |
| 10 | My mother has always felt that what her children need is to be free to make up their own minds and to do, even if this does not agree with what their parents might want. | 1  Strongly disagree | 2  disagree | 3  neither  agree or  disagree | 4  agree | 5  Strongly agree |
| 11 | As I was growing up my mother did not allow me to question any decision she has made. | 1  Strongly disagree | 2  disagree | 3  neither  agree or  disagree | 4  agree | 5  Strongly agree |
| 12 | As I was growing up my mother directed the activities and decisions of the children in the family through reasoning and discipline. | 1  Strongly disagree | 2  disagree | 3  neither  agree or  disagree | 4  agree | 5  Strongly agree |
| 13 | My mother has always felt that more forces should be used by parents in order to get their children to behave the way are supposed to be. | 1  Strongly disagree | 2  disagree | 3  neither  agree or  disagree | 4  agree | 5  Strongly agree |
| 14 | As I was growing up my mother did not feel that I needed to obey rules and regulations of behavior simply because someone in authority had established them | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 15 | As I was growing up I knew what my mother expected of me in my family, but I also felt free to discuss those expectations with my mother when I felt that they were unreasonable. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 16 | My mother felt that wise parents should teach their children early just who is boss in the family. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 17 | As I was growing up my mother seldom gave me expectations and guidelines for my behavior. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 18 | Most of the time as I was growing up my mother did what the children in the family wanted when making family decisions. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 19 | As the children in my family were growing up my mother consistently gave us direction and guidance in rational and objective ways. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 20 | As I was growing up my mother would get very upset if I tried to disagree with her | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 21 | My mother feels the most problems in society would be solved if parents would not restrict their children activities, decisions, and desires as they are growing up. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 22 | As I was growing up my mother let me know what behavior she expected of me, and if I dint meet those expectations, she punished me. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 23 | As I was growing up my mother allowed me to decide most things for myself without a lot of direction from her. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 24 | As I was growing up my mother took the childrens opinions into considerations when making family decisions , but she would not decide for something simply because the children wanted it. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 25 | My mother did not view herself as responsible for directing and guiding my behavior as I was growing up. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 26 | My mother had clear standards of behavior for the children in our home as I was growing up, but she was willing to adjust those standards to needs of each of the individual children in the family. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 27 | My mother gave me direction for my behavior and activities as I was growing up and she expected me to follow her direction , but she was always willing to listen to my concerns and to discuss that direction with me. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 28 | As I was growing up my mother allowed me to form my own point of view on family matters and she generally allowed me to decide for myself what I was going to do. | 1  Strongly disagree | 2  disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 29 | My mother has always felt that most problems in society would be solved if we could get parents to strictly and forcibly deal with their children when they are supposed to as they are growing up. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 30 | As I was growing up my mother often told me exactly what she wanted me to do and how she expected me to do it. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 31 | As I was growing up my mother gave me clear direction for my behaviors and activities , but she was also understanding when I disagreed with her . | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  agree | 5  Strongly agree |
| 32 | As I was growing up I knew what my mother did not direct the behaviors , activities and desires of the children in the family. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 33 | As I was growing up my mother expected of me in the family and she insisted that I confirm to those expectations simply out of respect for her authority. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 34 | As I was growing up , if my mother made a decision in the family that hurt me, she was willing to discuss that decision with me and to admit it if she had made a mistake. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 35 | On the whole, I am satisfied with myself. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 36 | At times I think I am no good at all. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 37 | I feel that I have a number of good qualities. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 38 | I am able to do things as well as most other people | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 39 | I feel I do not have much to be proud of. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 40 | I certainly feel useless at times. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 41 | I feel that I’m a person of worth at least on an equal plane with others. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 42 | I wish I could have more respect for myself. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 43 | All in all, I am inclined to feel that I am a failure. | 1  Strongly disagree | 2  Disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |
| 44 | I take a positive attitude toward myself. | 1  Strongly disagree | 2  disagree | 3  neither  agree or  disagree | 4  Agree | 5  Strongly agree |

# **APPENDIX B**

## **Research Report**

**Association between Perceived Maternal Parenting Style and Self-Esteem among Adolescents in Secondary School**

*Jenny Prince Matthew*

**Abstract**

Maternal parenting styles and its impact on adolescent's develop­mental stages has been an area of interest in the field of psychology. This is because the parents, especially the mother plays an impor­tant role to enhance adolescent's potential. This can be explored through the concept of effective parenting styles. Undeniably parenting styles practiced by both the parents decide in the development of adolescent's thoughts, feelings and behaviours. While many studies have explored the relationship between parenting style in general and self-concept, no known study has been carried out in Kenya examining the influence of the mother. Therefore, this study is undertaken to identify the perceived maternal parenting style and self-esteem among students in sampled secondary schools in Nairobi. The present study will use the quantitative research approach and the data would be collected from 100 students focusing on the relationship between perceived maternal parenting style and self-esteem. The perceived maternal parenting styles will be measured by the 'Parental Authority Questionnaire' (FAQ) instrument while the self-esteem will be measured by the 'Rosenberg Self-Esteem Inventory' (RSES). The data will be analysed by carrying out a correlational test using Pearson's r. Results revealed that the perceived maternal authoritarian parenting style positively correlated with levels of self-esteem among adolescents. In addition, there was significant negative correlation between perceived maternal authoritative style and self -esteem among the teens. Ultimately the current study underscores the need to fo­cus on the role of parenting style and adolescent’s self -esteem especially in African countries.

**Introduction.**

Adolescence is the transition period between childhood and adulthood. It is a period of multiple transition involving education, training, employment, unemployment and other developmental issues. Over the years, researchers have shown that parenting styles have strong impact on children's and adolescents' development. This is because it is within the family environment that individuals first acquire values, beliefs, attitudes, standards and behaviours considered to be culturally appropriate (Berns, 2009). Baumrind (1991) conducted studies and identified some important dimensions of parenting which include disciplinary strategies, warmth and support, communication style and expectations of obedience and control. Based on these, four parenting style- authoritative, authoritarian, permissive and neglectful were suggested by Baumrind (1991).

Authoritarian parenting style is characterised by high expectations of conformity and compliance to parental rules and directions. As stated by Baumrind (1996), children who are treated with authoritarian parenting styles tend to be more anxious, less socialising and less satisfied. Authoritative parenting styles are child centred approach of compliance to parental rules and directions while allowing an open communication about rules and behaviours between the parent and child. Authoritative parenting style encourages oral communication and involves children to carry out responsibilities based on the needs and abilities of their family members (Maccoby and Martin, 1983). Permissive style parenting is a loose style in which parents make less demands or control on their children and have little behavioral expectations from their children (Baumrind, 1996). Lastly, Neglectful parenting style in which parents are low in warmth and control. They are generally not involved in their child's life and are disengaged, undemanding and do not set limits. They provide everything the child needs for survival with little to no engagement (Brown & Lengar, 2008).

The teenage years are generally stressful for both parents and teens. Teenagers undergo a number of adjustments including biosocial, cognitive and psychosocial changes on their way to being adults. One important aspect of adolescent period that is greatly influenced by parenting style is self-esteem. Self-esteem is important because of its role in healthy human development and is defined as a person's overall evaluation of, attitude toward, her or himself (Leary & MacDonald, 2003). Individuals with high self-esteem usually have high self-confidence, resilient, are able to solve problems and are satisfied with oneself (Ross & Zeller, 2006). Conversely, individuals with low level of self-esteem are generally more vulnerable, anxious, lonely and depressed when faced with problems (Ross & Zeller, 2006).

Paulson, Hill, and Holmbeck (1991) found that children perceived greater closeness with their mothers than with their fathers. There are no universally best parenting styles, as they differ person to person according to the culture, environment and individual personalities. Prior research concerning the relationship between parenting style and adolescent self-esteem has revealed that adolescents who receive high levels of warmth and acceptance from their parents demonstrate elevated levels of self-esteem, whereas adolescents who experience less-accepting parenting practices show low self-competence, poor self-perception and low self-esteem (Milevsky, Schlechter, Netter, & Keehn, 2007).

Some of the studies also exhibit variations as to which parenting styles lead to highest levels of self-esteem. Garcia and Gracia (2009) found that both the children of indulgent and authoritative parents had the highest levels of self-esteem. In a study by Steinberg, Dornbusch & Brown (1992) revealed that for Hispanic adolescents, authoritarian parenting was highly related to adolescent engagement and achievements whereas the effect was weak for other subgroups. Similarly, Gonzalez, Greenwood, and Hsu (2001) found mother's authoritarianism to be related to mastery orientation (defined as seeking challenges, persisting in the face of difficulty, competent and self-reliant) among African American undergraduate students leading to greater self-esteem and self-satisfaction. These variations in results make it unclear as to which parenting style could be labeled as most successful in self-esteem development.

Most parents aim for the well-being of their children but children may not perceive parenting in the same way as parents believe they do. Children's perception may therefore be more relevant to their well-being therefore it would be of importance to focus more precisely on children's perceptions of parenting styles. Mothers are traditionally thought to have a greater influence on adolescent perceptions of self (Baumrind, 1991a). For the purpose of this research 'mother' is defined as the one who is either the adolescent's biological mother or had taken on mothering role for that individual since childhood.

The objective of this present study was therefore to determine the as­sociation between adolescent's self-esteem and their perception of mother (parenting style) as being authoritative, authoritarian and permissive. This study hypothesised that perceived authoritarian maternal parenting style had a significant positive impact on the adolescent's self-esteem.

**Method**

**Research** design. The present study used a quantitative design in the form of questionnaires to collect numerical data which would be thereafter analysed using SPSS. Quantitative methods are useful for both precise de­scription and for comparison. There are well-developed procedures for the analysis of quantitative data and using numbers enables greater precision in measurement. There is a well-developed theory of reliability and validity to assess measurement errors; this enables researchers to know how much confidence to place in their measures. The data collected can be easily sum­marised with well-established statistical methods enabling communication of the findings. Quantitative measurements facilitate comparison allowing researchers to get reactions of specific stimuli from many people and to compare responses across individuals (Barker, Pistang, & Elliot 2002|.

**Participants.** The present study was carried out in two schools from Nairobi. The population of the study consisted of the senior high school students from S.C.L.P.Samaj School and Nairobi International School. For the purpose of this research 110 students who took part in the research were picked using purposive sampling. This method signifies a series of strategic choices about with whom, where, and how one does one's research (Palys, 2008). This method has been specifically used because it is a deliberate choice of an informant due to the qualities the informant possesses. This is a non-probability sampling technique that did not need underlying theories or a set number of informants (Tongco, 2007).

**Instruments.** A single survey questionnaire would be used as the instrument to obtain information from the study participants. The questionnaire consisted of three sections (See Appendix 2). The first *4* items had demographic variables. The second part included the parental authority questionnaire followed by the Rosenberg self-esteem scale.

*Demographics.* The first part of the questionnaire is intended to collect participants' demographic characteristics or background information such as age, gender, mother's age and domicile.

*Parental Authority Questionnaire* ***(PAQ).*** Perceived maternal parenting style will be assessed with the Parental Authority Questionnaire (PAQ), which is designed to measure, Baumrind's parenting prototypes (Buri, 1991). It consists of 30 items per parent, 10 statements for each of the different styles of parenting in a five point Likert format ranging from strongly agree to strongly disagree where 1= strongly disagree to 5= strongly agree. The Parental Authority Questionnaire is most widely used for assessing adolescents' perception of parenting styles (authoritative, authoritarian, and permissive) and in this study the form for mother is used.

Buri (1991) administered the FAQ to college students in an introductory, psychology class at the beginning of the term and two weeks later to the same students. He reported test-retest reliabilities for the two week interval of scores on the subscales as follows: .81 for mother's permissiveness, .86 for mother's authoritarianism, .78 for mother's authoritativeness. In a study on perceived parenting styles as correlates of self-esteem among adolescents (Aihie, 2016) the reliability of the instrument was established using the test-retest method with an interval of four weeks and the Pearson Product Moment Correlation Coefficient calculated was r = 0.79. The scale has been used on a sample group, consisting of 384 adolescent girls in Iran (Khoynezhad, Rajaei & Mohebe-Raad, 2008) and the Persian version of this questionnaire was reported as to be valid and reliable. The study further revealed, Cronbach's alpha coefficient for authoritative, authoritarian, and permissive dimensions was reported 0.6, 0.83, and 0.61, respectively.

*Rosenberg Self-esteem Scale (RSE).* The Rosenberg Self-Esteem Scale is widely used self-report instrument for evaluating individual self-esteem. It is a 10-item scale that measures global self-worth by measuring both posi­tive and negative feelings about the self. The scale is believed to be undimensional. All items are answered using a 4-point Likert scale format rang­ing from 1 to 4, where 1= strongly agree to 4= strongly disagree. Items 2, *5, 6,* 8, 9 are reverse scored hence increasing the validity of the scale. Bringle, Phillips and Hudson (2004) tested the Rosenberg self-esteem scale for tem­poral consistency and it was found to have good internal reliability results. The scale generally has high reliability: test-retest correlations are typically in the range of .82 to .88, and Cronbach's alpha for various samples are in the range of .77 to .88 (Blascovich & Tomaka, 1993; Rosenberg, 1986).

**Data Collection Procedure**. The -researcher obtained permission from the school^ heads (the head teacher/ principal) to administer the questionnaire from the student participant. After obtaining the consent from the administration, the participants were given a brief explanation about the aims of the study. Participants were given thirty minutes to complete the questionnaires by recalling parenting styles as they pertain to their mother (or the maternal figure that is significant in their life, such as a step mother or care giver).

Ethical issues of the data collection will be handled along the Tangaza directives of research ethical issues. Interviewee's are made aware of the informed consent (Appendixl), freedom to withdraw, deception, protec­tion from physical and psychological harm, confidentiality, anonymity and academic integrity. Academic integrity reveals transparency, honesty and commitment at every stage of research work avoiding unethical practices, plagiarism and misconduct in research.

To answer the research question the data was analysed using a Pearson product-moment correlation. The Pearson's r was used to test significant correlation between adolescents reporting permissive, authoritarian and authoritative parenting styles on levels of self-esteem. Due to the fact that the research was testing the association between perceived maternal parent­ing style and self-esteem among adolescents the Pearson's r was an impor­tant part of this research.

**Results**

**Reliability of Scale.** There were two multiple items scale in the study: Perceived maternal parental style (Authoritarian, Authoritative and Permissive) and Self-esteem. The reliability of the instruments used in the study was tested by means of Cronbach's a, which tests internal consistency reliability. Table 1 reports the Cronbach's a for all the scales, the internal consistency reliability for authoritarian and authoritative parenting style were above the acceptable levels and for self-esteem measure the reliability was good. For permissive parenting style the internal consistency was low.

**Table 1:**

**Reliability of the scales used in the study**

S. No Variable No of Items Cronbach's a

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | Self-esteem | 10 | .809 |
| 2. | Authoritarian | 10 | .727 |
| 3. | Authoritative | 10 | .775 |
| 4. | Permissive | 10 | .477 |

Description of the Participants. The total number of participants in the study was 100. The number of male students that took part in the research was: 40 (4 0%), while the female students were 60 (60%). The difference in gender distribution of the participants was marginally big. The mean age of the sample was 18 years, with the youngest participant being 16 years and the oldest being 2%.

With regard to the age of the participant's mother, the mean age of the sample was 46 years, with the youngest age being 38 years and the oldest being, 62 years. Participants, who have lived in Nairobi city most of their lives held the majority share with 82% respondents claiming so, followed by town with 16% and then village 2%.

**Correlation between perceived maternal parenting styles and self-esteem. To test if there is a correlation between the variables maternal**

parenting style (authoritarian, authoritative and permissive) and self-esteem among adolescents in the study, a Pearson's correlation co-efficient (r) was carried out using correlate in SPSS. The result showed there was significant positive correlation between authoritarian parenting style and self-esteem at r value above .206 and also that the correlation is significant at the 0.05 level of significance (.04 < .05). Moreover, the results showed negative correlation between authoritative parenting style and self-esteem with r value -.235 and p value *<* .05 showing a significant difference (.01< .05). On the other hand permissive parenting style and self-esteem showed a positive correlation at r value .022 but was not statistically significant as p value > .05 (.82 > .05) as in Table 2.

**Table 2:**

**Correlation between Perceived maternal parenting styles and Self-Esteem**

N=100;\*p<.05;\*\*p<.01

**Association between gender and self-esteem among adolescents.**

Out of curiosity, it was also interesting to find out whether there is a difference between males and females on their levels of self-esteem. To find the statistical difference between the two groups it required a t-test to be carried out. Using descriptive statistics the results showed that there was a significantly small. Difference between the mean scores of self-esteem on the basis of gender showing females a bit higher than the males (Males: ^1=20.2, SD=5.05: Females: p2=21.8, SD=5.18). The t-test showed that the scores were not statistically significant t=1.45, p= .596 (.596 > .05). In other words, gender had no statistical significant impact on self-esteem of the adolescents.

**Discussion**

Adolescence is a time where teens are exploring their own identity with the guidance of their parents. During this time, parents play an important role in the shaping of their children's character and are considered an im­portant detriment in several aspects of their future outcomes and how they view themselves. There is no universally best parenting style as cultures, en­vironment and individual personality characters are different for each per­son. Moreover it is always the mothers on the average who spend more time taking care of their children than their fathers. This study revealed that there is greater influence of maternal parenting on adolescents' self-esteem. This finding corroborates Russel and Russel, cited in Milu and Fathima (2015) who opined that maternal parenting style has greater influence on individuals be­cause up to middle childhood, mothers spend more than twice as much time alone with their children than do fathers. It is therefore expected that percep­tion of mothers' parenting styles/ appraisal of them would make significant impact on the psychological development of children and adolescents.

Furthermore, the study revealed that perceived authoritarian mater­nal parenting style showed greater significance on the self-esteem of the adolescents. The Authoritarian parenting has been associated with a vari­ety of negative outcomes and has acquired a negative connotation in the western background and literature. In considering authoritarianism and children's outcomes, the main effects of culture are also important to con­sider because some of the cultures (collectivist) may see it normative and necessary for the promotion of optimal development of the children. Chao (2001) reported that foreign-born Chinese adolescents and native-born ado­lescents with Chinese parents were significantly more likely to rate their parents as authoritarian compared with European-American adolescents. Pong, Hao, and Gardner (2005) used more recent data to show that Asian-American parents were indeed more likely than native European-American parents to manifest authoritarian decision-making. Martinez and Garcia (2007) showed that Brazilian adolescents from authoritarian families scored equally or higher on several self-esteem dimensions than adolescents from authoritative families.

In a study of single-parent African American families where Brody and Flor (1998) observed "no-nonsense" parenting, consisting of highly control­ling interventions that were accompanied by maternal warmth. This style of parenting was associated with greater cognitive and social competence and fewer internalising problems in children, an outcome mediated by chil­dren's self-regulation skills. Wang and Ollendick (2001) have contended that in certain cultures the evaluation of important in-groups may be just as or more important to one's sense of well-being as the evaluation of the self because one's sense of self is permeated by relationships with important others and also because children's self-esteem is influenced mainly by their perceptions of what significant others think of them.

Low self-esteem strips the person of their self-confidence and makes it difficult for them to make decisions and choices which can lead to several negative outcomes. Several studies done in Europe found that low self-es­teem prospectively predicts antisocial behaviour, eating disturbances, de­pression, and suicidal ideations (McGee & Williams, 2000; Orth, Robins, & Roberts, 2008) which are significant negative consequences for life outcome. The current study revealed that gender difference was not significant on levels of self-esteem derived. These findings seem to compare closely with what had been found in Europe where gender difference was small (Kling, Hyde, showers & Buswell, 1999) or not significant (Keltikangas-Ja'rvinen, 1990) as compared with self-esteem among adolescents.

The objective of the present study was to investigate the association between perceived maternal parenting styles and self-esteem among adolescents. The data collected for this study was obtained from students of two different schools from Nairobi. The findings for the study showed that there was an association between maternal authoritarian parenting style and adolescent's self-esteem. Authoritarian parenting supports the contention that authoritarianism may have different meanings and different cultural implications because it includes dimensions of obedience and strictness equating to parental concern, caring and involvement. Hence, this could be one of the factors for authoritarian maternal parenting style being positively related to self-esteem.

The study had many limitations. There was no latest and advanced perceived parenting questionnaire, so this present study could only measure parenting by using the parental authority questionnaire (FAQ) which is the questionnaire used to measure parenting styles. However there are four parenting styles today. Besides that, participants had to answer two sets of questionnaires in this study and it was tiring to answer too many questions. Also some specific words in the questionnaire were difficult to understand and most of the questions were lengthy therefore some students gave up and left many questions unanswered. Furthermore, the complex nature of parenting and parenting style may not be the only factor that determines the students' self-esteem. For example, achievement motivation, teachers and peers are also contributing to the students' self-esteem. Therefore, further work is needed on the limitations of this study in the future in order to fill the gaps in research on this topic. Finally, the schools from where the data was collected had a majority of students from the Asian background and culture, which could have caused a positive correlation concerning authoritarian parenting and self-esteem among adolescents.

The results however cannot be generalised to the general public due to the small sample size that was used. More and more research that is similar and related to this topic is recommended as parenting is important in affecting adolescents who play significant role in society and community and also the newest findings and ideas can be updated. In conclusion there is a need to do a more comprehensive research when keeping into account the African setting as most if not *all* of the research has been done in developed countries.

**References**

Omitted here.

**Appendix.**

*Not replicated here as it is the same as in Research Proposal.*